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ABSTRACT

This research note combines three papers that suggest roles for the National Institute of Education (NIE). The first paper concludes that the work sponsored by the NIE should depart from past educational research in two ways: (1) educational issues should be examined in the context of broad societal issues and problems and (2) exploration of those issues should be essentially a moral inquiry. The remainder of the paper explores these two assertions, concluding with a discussion of NIE's role in educational reform and some examples of research questions that follow from the analysis presented. In the second and third papers, an attempt is made to translate conclusions from future oriented inquiry about the societal context of education into goals and programs for NIE. (Author/JF)

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THE NATIONAL INSTITUTE OF EDUCATION: WORKING PAPERS ON PROBLEMS, GOALS, AND PROGRAM INITIATIVES FOR NIE

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FOREWORD

The prospect of a National Institute of Education--an agency with primary responsibility for Federal sponsorship of research and development in education--is an exciting one for it offers a chance to stimulate more effective utilization of knowledge in education and to create new mechanisms that would involve noneducational sectors of society in the resolution of education-related problems.

A wide variety of inputs have been sought to help determine the best role for NIE and how it should fulfill that role. This Research Note combines three papers that the Center prepared in response to such requests.

The first paper, "A Crucial Role for the National Institute of Education," was requested by Congressman John Brademas, and it appeared in Appendix 1 to Hearings on H.R. 3606 and Related Bills to Create a National Institute of Education Before the Select Subcommittee on Education (Committee on Education and Labor, House of Representatives), January, 1971.

The second and third papers, "A Needs Assessment for Educational R&D" and "Future-Oriented Program Alternatives for the National Institute of Education," were commissioned by USOE's NIE Planning Unit as part of their effort to obtain wide-ranging sources of expertise for NIE program planning.

A summary of all three papers and a combined table of contents are presented first, after which each of the three papers is presented as originally written.

O. W. M.

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SUMMARY

A Crucial Role for the National Institute of Education

Society demands that education provide solutions to education-related problems and fulfill needs that are related to broad social goals as well. Legislation establishing the NIE implies that such broad goals provide the proper assessment standards for education. As shown by our century-old national policy to strengthen American agriculture through research and development, however, striking successes with limited goals, in fact, may bring failure in terms of some broader social goals.

Thus, the first paper concludes that the work sponsored by the NIE should depart from most past educational research in two ways:

(1) Educational issues must be examined in the context of broad societal issues and problems (for which we have to date only inadequate formulations and models).

(2) Exploration of those issues must be essentially a moral inquiry.

The remainder of the paper explores these two assertions, concluding with a discussion of NIE's role in educational reform and some examples of research questions that follow from the analysis presented.

The Future Context of Education

In the second and third papers, an attempt is made to translate conclusions from future-oriented inquiry about the societal context of education into goals and programs for NIE. The following conclusions were central to this task:

- Many of the education-related problems facing our society are systemic in nature--they have determinant roots in noneducational sectors of society, and "single-sector" attempts at resolution are often not successful (e.g., in education of the disadvantaged and "career education").

- Society is undergoing an increasingly accelerated rate of change, including a transition from an industrial, production-oriented society to a post-industrial, service-oriented society; and it is becoming increasingly "close-coupled" (i.e., a change in one sector quickly and strongly impacts on other sectors, often in unanticipated ways).

- Viewed from a historical perspective, the present era (dating from the industrial revolution until, perhaps, the early part of the 21st century) must be viewed as unique. It is a period in which man is living off a legacy of virtually nonreplenishable minerals and fossil fuels. It was preceded by millenia during which man's consumption from the ecological reservoir was small and his impact on the nonhuman environment was minor. It must be followed by a period of indefinite duration in which human activity fits into some new set of ecological relationships which are likely to be antithetical to many of the basic values on which Western institutions are based.

- The rate of change will most likely extend to changing values and basic premises of the culture.

- The needed changes cannot come from and are unlikely to be controlled by centralized, top-down strategies unless authoritarian methods are used.

- The combinations of factors such as an increasingly stringent financial squeeze on the schools and an overabundance of trained manpower for conventionally defined jobs in education means that humane application of educational technologies will be urgently needed.

A Needs Assessment for Educational R&D

The educational needs and goals discussed in the second paper reflect the above conclusions as well as those in conventional educational literature and the Congressional hearings on NIE. A variety of educational and societal problems were first identified, and then educational goals were derived from them. Such problems were characterized as being chronic, acute, or adaptive in nature. Chronic problems are those that have existed in the past and are expected to exist in the future (in spite of remedial efforts). Acute problems are those which appear to be of critical immediate importance. Adaptive problems stem from stresses and dislocations caused by the rapid rate of change in various sectors of society that affect education. Although chronic problems need continuing attention, and acute problems seem most demanding of immediate attention, stress was placed on the importance of anticipatory R&D in preventing adaptive problems from becoming acute.

A variety of specific goals was identified in the report. The following were given highest priority, if education and educational R&D are to be responsive to characteristics of the probable future:

- To continually anticipate new developments that will impact on education so as to avoid the crisis orientation typical of present programs.
- To develop the arts with which "multi-sector" approaches to education-related problems would be more feasible.
- To balance centralized financing and planning of educational R&D with decentralized approaches to educational problem solving, thus contributing to the development of a competent problem-solving infrastructure in society.
- To encourage cultural pluralism in education, with an emphasis on cultural unity through constructive change--especially in education for the "have nots" and "have lots."

- To foster consumer choice in education.

- To foster a high degree of tolerance, flexibility, and an ability to cope with varied cultural norms. This implies an emphasis on the ability to gain new skills over the attainment of any particular skill, on having access to knowledge and skills to integrate new knowledge, and on the development of self-reliance over dependence on experts.

Future-Oriented Program Alternatives for the National Institute of Education

The third paper attempts to complement--rather than duplicate--the results of others' efforts. Hence, comprehensiveness was not sought. Only a small fraction of the educational goals established in the first phase of the analysis were developed into program alternatives for NIE. Four areas of concern were specifically addressed:

- Policy-oriented research on the societal context of education
- Decentralized approaches to increase the effectiveness of the educational R&D system
- Multi-organizational coordination
- Anticipatory identification of education-related problems.

Research programs for the first three areas of concern are developed in a separate section of the report. Rather than develop in detail the wide variety of research programs that would respond to anticipated problems, however, such programs were listed in the section on Societal Context Research, where they can be referred to by NIE planners.

A list of developed program alternatives and their supporting rationale is as follows:

Societal Context Research

R&D planning must anticipate the changing context of society if it is to reduce the need for crisis-oriented programs. In addition, long-range implications of present policies need to be drawn as part of the overall policy analysis of educational programs. Such research is usefully partitioned into work that is conclusion oriented [Element (1) below], decision oriented [Elements 2, 3, and 4 below], and translation/dissemination oriented [Elements 5 and 6 below]. The program elements developed are:

(1) Holistic Analysis of Society: inquiry into the broad alternative prospects that are plausible for society, and identification of desirable broad strategies.

(2) Trend and Event Analysis: in-depth inquiry into key trends and events having particular relevance to the planning of anticipatory R&D.

(3) Anticipatory Needs Assessment: determination of education-related needs that are responsive to plausible future conditions in society.

(4) Policy Implications: assessment of present or proposed policies in terms of plausible societal consequences.

(5) Integration/Translation: repackaging results from the above studies for improved dissemination and utilization.

(6) Dissemination: active dissemination to targeted audiences.

(7) Support of Unsolicited Research.

Increasing the Effectiveness of the Educational R&D System

A variety of program proposals have been made to the NIE Planning Unit that emphasize strong, agency-based management of educational R&D at the Federal level. Given the decentralized character of American education, with its strong traditions of local control and the probable character of future societal developments, complementary R&D strategies of a more decentralized character are needed to balance this emphasis--programs designed to increase both desires and abilities for educational renewal at the local level. The following programs were identified with these needs in mind:

(1) A Decentralized Market Mechanism: This approach would seek to foster a competitive system of services offered by both public and private sectors, from which state and local educational agencies could "purchase" needed R&D services.

    (a) Funding-incentive contracts for development of public and private marketing capabilities and R&D services.

    (b) Categorical funding of educational agencies for their discretionary purchase of desired R&D services and consultation.

    (c) A clearinghouse for vendor information.

    (d) A consumer-oriented "better business bureau" type of activity.

(2) Programs to Increase the Local Incentive to Innovate: These programs would seek to increase public awareness of the need for educational renewal and the skills necessary to initiate renewal activity at the local level.

    (a) Change-Agent Training--Special training programs (either in anticipation of, or simultaneous with, formal programs of educational renewal), especially targeted for school principals and selected teachers. Such training could become part of university-based teacher-training curricula.

    (b) Social Marketing Approaches--Federal exploration of social marketing as a means to increase the effectiveness of dissemination and to increase salience of such problems as the lack of status of teaching in "problem" elementary schools.

    (c) Voluntary Sector Approaches--Research to promote the state-of-the-art of voluntary organizational participation in the policy process of education, especially at the local level.

    - State-of-the-art survey on community involvement.

- Conference on ways to promote voluntary participation.

- Contract to develop practical models of participation in educational assessment and planning.

- Contract to develop a model for participation.

Research on Multi-Organizational Coordination

Due to the increasing "close-coupling" of society, and the systemic nature of many educational problems cited earlier, multi-sector approaches to education-related problems appear increasingly necessary. The literature relating to the state-of-the-art of multi-organizational coordination is very fragmented. Never summarized, it appears to exist largely in the form of unpublished government memoranda or similar reports. The following research programs were proposed to deal with these needs:

(1) A State-of-the-Art Assessment and Analysis Project: a one-shot study to summarize and interpret the literature and personal knowledge of persons with relevant multi-organizational experience.

(2) A Research Advisory Committee on Multi-Organizational Coordination: a standing panel of experts on the state-of-the-art of multi-organizational research and operations (between Federal agencies, between Federal, state, and local levels of government, and between the public and private sectors).

(3) A Research, Development, and Training Center for Multi-Organizational Concerns: institutional support for a university-associated but independent center to conduct conclusion oriented and decision oriented research on problems of multi-organizational coordination and to manage training fellowship and field internship programs.

A CRUCIAL ROLE FOR THE NATIONAL INSTITUTE OF EDUCATION

by

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EDUCATIONAL POLICY RESEARCH CENTER
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Menlo Park, California

February 16, 1971

i-I-1

A CRUCIAL ROLE FOR THE NATIONAL INSTITUTE OF EDUCATION

by

Willis W. Harman and Thomas C. Thomas

These remarks are addressed to the questions of what kinds of disciplined inquiry would be most relevant to the changing demands on education, and how the proposed National Institute of Education might best contribute toward this end. In particular, they point out that expectations implicit in the discussions surrounding NIE proposals suggest an inquiry more far reaching and of significantly different character than is implied in most current projections of educational research[1,2].

Expectations for NIE and Conditions for Their Realization

A society demands that its educational system meet its goals and resolve its problems. As a consequence, times of social change require that educational priorities and functions change. This is almost a truism, as we can see by recalling a few of the past demands on the schools--to provide training in the new industrial and mechanical arts, to assist in the Americanization of immigrants, to contribute toward raising sagging American prestige in the post-Sputnik days. Thus, in addition to the standard demands resulting from the educational needs of a modern complex society, special demands on the educational system arise from perceived social problems of the "seventies," and from contemporary goals.

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1. L.J. Cronbach and P. Suppes, "Research for Tomorrow's Schools" report of the Committee on Educational Research of the National Academy of Education, Macmillan, 1969
2. R. E. Levien, "National Institute of Education" report on the first phase of a planning study for the proposed institute, U.S. Office of Education, January, 1971.

Their diversity, if not their quantity, is shown by the following needs.

- To increase the ability of the disadvantaged to contribute to the society (economically, but also in other ways) by raising educational achievement.
- To assist in the reduction of political and racial conflict.
- To develop in children the qualities for successfully coping with an uncertain future (self-directed learning, flexibility, ability to think in terms of alternative courses of action, strong self-image and high self-reliance, self understanding, responsibility, well developed moral sense)
- To meet more stringent criteria of effectiveness and social accountability at a cost the society will bear.

NIE's proposed task is to strengthen educational research effectiveness in ways that will contribute to the resolution of these problems and, thereby, to reduce present dissatisfactions with the educational system.

An interesting parallel can be made with the case of agriculture. A century-old national policy to strengthen American agriculture through research and development has produced results that are judged outstanding by most criteria. Through nationally organized and funded laboratories, experimental facilities, and demonstration and training sites, agricultural productivity has been increased dramatically and the quality of many products has been improved. This example has often been cited to argue that a similar policy in education could produce equally outstanding results.

This may not be a realistic expectation. If success is to be measured in terms of increased productivity and product quality, agricultural research has unquestionably been conspicuously effective.

However, if these same accomplishments are evaluated against such social goals as equality of access to high quality agricultural products, or improved economic position of small farmers and agricultural workers, or husbanding of the country's agricultural lands, the assessment is not nearly so positive. Therefore, it is important to realize that, in the case of education, it is precisely such broad social goals that are the proposed assessment standards. Furthermore, where the agricultural function is localized to farms and distribution systems, the learning function is diffused throughout the society with only a fraction taking place in the formal educational system. Thus, the narrowly focused educational research we have known in the past--even if vastly increased in quality and amount--may not greatly affect the overall educational process in the society, or assist the educational system to more nearly meet the demands being made on it.

Yet historical precedent gives us ample reason to believe that disciplined inquiry, imaginative program development, and the adoption of suitable management techniques, can enable us to resolve problems and to achieve goals once those problems and goals are adequately defined. If NIE is in fact to address its efforts to the broad aims outlined in the President's 1970 Message on Educational Reform, planning must reflect the unique characteristics of a disciplined inquiry that could deal effectively with the tasks. If NIE is focused on fractionated problems and partial goals--for whatever reasons of initial design, disciplinary limitations, or political expediency--the outcome will inevitably be another episode of expectations raised and not realized.

The nature of the questions that must be addressed implies two significant differences between the anticipated work of NIE and most past scientific and educational research:

(1) Educational issues must be examined in the context of broad societal issues and problems (for which we have to date only inadequate formulations and models).

(2) Exploration of those issues is essentially a moral inquiry, for education is always directed to some end.

We propose to examine the above differences, and their consequences.

The Societal Context of Educational Issues

The preponderant tendency in educational inquiry is to agree that educational issues can be meaningfully examined only in the broad social context--and then to take actions that indicate we do not really believe it. There are various reasons for this, including bureaucratic limitations of responsibility, the intimidating complexity of the larger problems, the traditional partitioning of knowledge into disciplines, and narrow definitions of what constitutes rigorous, value free research.

Our intent is not to devalue the numerous merits of current educational research, but to highlight the fact that the lack of broadly focused research cripples the formulation of effective educational policy. It is important to note that these two approaches are complementary:

a) broadly based research on the whole educational system and on the interaction of education with other parts of the society, and

b) more narrowly focused component research in such areas as curriculum, pedagogy, and learning theory.

The former is needed to guide the latter, and the latter gives substance to the former. Thus the question is not whether we need broad systemic inquiry instead of subsystem component research, it is, rather, how to accomplish the extremely difficult, but critically needed, systemic studies and experiments.

Without belaboring the point, let us summarize five commanding reasons why educational issues must be seriously examined in the context of broad societal issues:

(1) Most serious educational problems are components of more pervasive social problems, and hence can be adequately understood only in the broad context.

(2) The entire society educates, so that formal educational experience is but a component of the whole.

(3) The range of actions of the formal educational system is constricted by influences from the larger society.

(4) Limited formulations of a problem may limit the range of means sought for its resolution.

(5) Optimizing the achievement of subsystem goals without reference to the larger societal (systemic) goals may not be most advantageous or sufficient.

It may be illuminating to examine a specific example to see how these points apply. Consider a question of current concern: the culmulative reading deficit of poor children, particularly minority-group children.

Although there have been many studies examining many aspects of the reading issue, the results to date offer little basis for expecting that such research will lead to new programs effective outside the experimental classroom. Some of the possible reasons are suggested below.

(1) Educational problems as components of pervasive social problems:

The difficulties minority and poor children experience in acquiring reading skills are related in part to the broad phenomenon of maintenance of an "underclass" in which blacks and browns are significantly over represented. No adequate models exist of the mechanisms accounting for the persistence of this underclass; the ways in which the sense of hopelessness is transmitted from one generation to the next; the effects of community, teacher, parent, and child expectations on student achievement; the basic cultural assumptions about what kinds of educating and socializing experiences should be provided and when; the effects of a multitude of physical, psychological, and social circumstances on aptitude, energy, and motivation. Isolated findings exist relating early environmental stimuli to cognitive development, infant nutrition to intellectual aptitude, and so on, yet there have been no overall frameworks into which these findings have been incorporated to yield productive broad-based strategies.

(2) Entire society educates:

The child's personality, motivations, attitudes, skills, and knowledge are influenced by all the social forces acting on him--attitudes and beliefs of the immediate and larger community, relationships with peers, television and other media, advertising, and contacts with the world of business. His ability to cope with his social environment of which reading ability is but a component, is a function of all of these. Hence an effective strategy for developing this ability may have to include much more than reading-development techniques per se.

(3) Educational actions constrained by society:

To be effective, actions and programs within the school require financial, institutional, and moral support by the larger society. Present reward structures and other system characteristics make it unlikely that programs that have proven successful in individual cases, but change normal operating patterns (e.g., older children teaching younger ones) will be widely used, while other repeated failures, which conform to normal operating patterns, (e.g., reducing class size) continue to be repeated. This tendency is heightened by a dilemma common to all social experiments in a political environment: "If a problem area...is unpopular and/or unimportant, experimentation should not and/or will not be done; but if it is popular and important, action will not wait for experimentation."[3]

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[3] P.M. Timpane, "Educational Experimentation in National Social Policy," Harvard Educational Review, vol. 40, No. 4, November 1970, p. 565

(4) Limited formulation of the problem:

Definition of a problem as "low reading aptitude" is likely to lead to consideration of a much more limited range of alternative strategies than definition of the problem as "a society that perpetuates a low self-fulfillment, low social-contribution underclass." The reading problem may turn out to be more successfully dealt with by a tangential, systemic approach than by a head-on reading techniques approach alone. A more comprehensive approach might include such features as relaxation of specific capability goals at definite grade levels; reducing the amount of sorting-and-labeling in connection with learning; altering the environment of high stakes competitiveness (which might require re-examination of the economic system); carrying much further the idea of free nutrition for needy children and pregnant mothers; making educational toys available in homes with small children, laying down guidelines for advertising on children's TV programs; increasing employment opportunities for older minority youth who can read; using more of such young people in helping to teach younger children; and other ways of affecting those factors which we already know from past research to have a bearing on the learning aptitudes of young children. Further, the systemic analysis in a broad context is an indispensable prerequisite to effective targeting and planning of more narrowly focused research.

(5) Suboptimization:

Examining potential systemic changes (rather than only having more narrowly directed reading programs) would make it likely that overlap and continuity requirements would be adequately dealt with (more likely than in the case of Head Start, for example), and that second-order consequences (with regard to child-adult relationships, side effects in family and community, impacts on school administration, and so on) would be anticipated and programmed for.

The above discussion seeks to illuminate the synergistic nature of our social organization and how one seemingly small educational issue--reading mastery--affects and is affected by social issues and problems that appear to be far removed and unrelated to it. We have yet to develop adequate methodology and tools with which to address social issues within their more holistic contexts. Though the task is difficult and the way largely uncharted, significant improvement of educational problems awaits such research development.

Educational Research as a Moral Inquiry

A prime function of publicly supported education in the United States is to implement the chosen goals of the nation. This implies two things above all. The first is that the central purpose of education is to enable persons to function effectively within the social context of their time. The second is that the ultimate goal of the educational system, as it is of the nation, is the well-being and self-fulfillment of the individual. "A paramount goal...is to guard the rights of the individual to ensure his development, and to enlarge his opportunity... Our enduring aim is to build a nation and help build a world in which every human being shall be free to dedicate and develop his capacities to the fullest."[4] Further, education needs to be future-oriented--for today's infant will be an adult in tomorrow's very different world.

Whereas the task of education is to develop a set of coherent and consistent educational objectives and a plan of action toward their achievement; the overall task of educational research is to provide the knowledge and understanding that will contribute to their realization. The objectives need to be responsive to the historical moment with its unique social problems and challenges. It needs to reflect the experience of the community and to be consistent with the basic tenets of the nation and of Western political tradition.

Thus educational research is essentially a moral inquiry. Its task is to develop the most advanced methodology and to provide the scientific knowledge that will implement the noblest values of mankind. The tasks of research--from selection of topics, to choice of methods, to interpretation of results--are shaped by the implicit premises and values of the inquirer. In order for educational research to be consistent with the nation's tradition, the goals must be selected in an open political process. Thus analysis of educational research objectives and strategies needs not only to be a moral inquiry, but an open moral inquiry. That is to say, not only is examination of the value issues and the implicit premises that lie behind them central to the task, but open examination of them is essential in order to arrive at agreements on common action (even though common perspectives may not be shared.) The authority of the researcher-as-expert will not go unchallenged in this field.

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[4] Report of the President's Commission on National Goals: Goals for Americans, Prentice Hall, 1960; p. 1.

To pursue the inquiries shaped by these principles requires:

(1) That the inquiry itself involve many people, of different backgrounds and in different positions, to share perspectives and test judgments

(2) That the inquiry must be guided by a set of values and goals that are basic to the common endeavor which has for two centuries been called the United States of America

(3) That the inquiry be intimately linked to action, not only in projecting consequences but in testing them as well.

(4) That decisions regarding such tested consequences be determined in the open forum of public debate.

These inquiries need to explore areas where massive injustices exist, as with minority groups and the poor; where the unintended consequences frequently outweigh the intended ones, as in the applications of new technology; where the pursuit of limited self-interests destroy community potentials. Also they will need to appear responsible to the establishment and legitimate to the dissidents.

Examples of Research Questions

What kinds of research questions, being a moral inquiry into the societal context of educational issues, would be relevant to the sorts of needs described in the President's Message on Educational Reform? Some illustrative examples are:

- What changes would help to reduce inertias and rigidities in the educational system and foster a greater degree of experimentation and an ability to meet problems with adaptive change?
- What educational objectives could be inferred from present educational practices and results (as opposed to what educators claim as their objectives), and how do they look in terms of the kind of world the child will be living in as an adult?
- What, in terms of those objectives, are the most satisfactory models of human growth and learning?
- To what extent may present educational objectives, philosophies, and practices be contributing to the occurrence or severity of such social problems as ecological irresponsibility, racial prejudice, unemployability, national disunity, and the like?
- What alternative ways can education be structured in order for business and industry, government, schools, the media, advertising, entertainments, the courts and prisons, to be considered together as one vast educating system?
- As only one of numerous educating influences in society, what educational functions should the formal educational system emphasize? How can those functions best be accomplished?

- How--in view of the changing work environment--can a planned evolution of the structure and function of vocational, or continuing, or adult, or higher education best take place?
- What are the comparative advantages and disadvantages of retaining the present sorting-labeling and gatekeeping functions that education performs for the society, compared with dropping some of them or shifting them to other institutions of society?
- What are the present patterns of rewards and sanctions in the educational system, especially with regard to experiment and innovation, and what are feasible modifications?
- What sorts of changes will be necessary in the schools to restore a widespread feeling of legitimacy?
- What are the alternative choices with regard to increasing the accountability of the educational system to the society, and what are the basic issues involved in making the choice?

NIE's Role in Educational Reform

The vast task of restructuring and reform of the educational system will require concerted action and commitment throughout the society. The contribution of a NIE that functions in the traditional mode of an isolated collection of educational researchers, bounding their problems to the classroom or even to the educational system, would be limited. The impact of a NIE that addresses the larger propositions and the broader issues of human endeavor will be significant.

It is clear that increasing the effectiveness of the teaching process is not enough. The major problems the society faces today are in some measure a consequence of past educational "successes"--in educating "good workers" for the industrial system and "good consumers" for the economic system whose per capita impact on the environment has reached on all-time high and also in labeling, early and indelibly, those who would not fit into the mainstream.

The results of NIE's research program cannot be limited to the apparently amoral one of increasing the effectiveness of the educational system--it must ineluctably increase effectiveness toward some social moral goals, explicit or implicit. In a time when all social goals are being re-examined (e.g., economic growth, nationalist imperialism, exploitation of nature, the "technological imperative") and basic premises and value postulates questioned (e.g., the "scientific" or "economic" reductionist view of man), the issue is particularly critical.

We have emphasized the need for NIE to do research that will result in open and continuing examination of educational goals for the entire society and the interaction of societal and educational problems. This is not because we feel that a large fraction of the research money needs to be devoted to these issues. Rather, it is because the leadership function in NIE and in education in general must be supported by the type of research that has been described. Broad systemic research and more narrowly focused component research complement each other because the former is needed to guide the design and application of the latter, while the latter gives substance to the former.

Thus our remarks have profound implications for the mission of NIE, the structure of the organization, the choice of the director and top staff, the planning and evaluation functions, and part of the research program. The implications are much less for the bulk of the research work that will be done. However, even here, we expect NIE to be sensitive to developing ways that may make the component research more interlocking and additive than has been true in the past. Our recommendations for NIE's mission are broad, but no less broad are the demands of society upon education.

March 1972

A NEEDS ASSESSMENT FOR EDUCATIONAL R&D

O. W. Markley, Dorothy McKinney, and Dan L. Rink

Educational Policy Research Center

Note: This is a first draft of a hasty analysis effort. Criticisms and suggestions are invited.

Executive Summary

This report presents the results of a three-week effort to translate the ongoing future-oriented research of the SRI/EPRC and other thinking into a structured set of program goals for NIE consideration.

The rationale underlying our selection of such goals (and the later development of corresponding program alternatives) rests on the perceptions that: (a) the anticipation of future problems which have not yet become acute is a necessary part of R&D planning, given the long lead-time required before R&D products become mature; (b) many of the most critical problems of education and society are systemic in nature, hence are intractable by conventional piece-meal approaches; and (c) coordinated multi-agency and public-private approaches are likely to be increasingly necessary for the resolution of education-related problems and goals.

A variety of societal trends and possibly corrective responses that have an educational component are presented to illustrate the conclusion that new roles of education and educational R&D are of central **importance** to the achievement of a desirable future. Educational problems and needs that were culled from a variety of sources are categorized as being either chronic, acute, or adaptive in nature. The reasoning underlying this approach is that while chronic problems need some attention, and acute problems seem most demanding, the prevention of problems from becoming acute should be a key consideration in R&D programming. The importance of adaptive problems (the stresses resulting from the rapid rate of change in virtually all sectors of society) is that they offer identifiable areas that have not yet but are likely to become acute without corrective attention.

The main body of the report concludes with a set of goals derived from 21 selected problems and an outline of work proposed for the remainder of a 3-month effort. Supporting analyses are presented in several appendices.

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A NEEDS ASSESSMENT FOR EDUCATIONAL R&D

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Introduction

Scope of Work

The NIE Planning Unit has invited the SRI/EPRC and several other policy research organizations to assist with the development of program initiatives that NIE might support. Each group was told not to seek comprehensiveness, but rather to translate the most important insights that resulted from their work to date into a form that would be most useful to the NIE Planning Unit. The analytical approach to be used was set forth in a memorandum "Specifications for NIE Planning Contracts," in which four task elements were defined: (1) the development of an ordered goal structure, identifying target groups affected by the achievement of these goals; (2) a description of the state of the art relating to manipulable variables through which these goals might be achieved; (3) the specification of program alternatives for NIE that are responsive to conclusions reached in the first and second task elements; and (4) the development of a funding strategy and support priorities to help guide the selection of program initiatives.

This paper addresses the first of these tasks, and suggests how the remaining work might be approached. Its central objective is to develop a structured set of educational problems/needs/goals from which program alternatives for NIE can be developed; these are based to a great extent on the future-oriented educational policy research that has been conducted by the SRI/EPRC.[*]

Some Conclusions about the Future

A systematic investigation by the SRI/EPRC concluded that of some forty plausible alternative future histories, only a small fraction seem desirable, and that each of these few cases is unlikely to be realized without pervasive changes in the operative values of the culture and a reunification of the nation around the solution of its problems. A central reason for this sobering conclusion is the observation that while it is commonly recognized that most contemporary societal problems are interrelated, their import can more readily be grasped if they are viewed--not as individual problems--but as a network of social forces. These forces result from the combination of such circumstances as proliferating knowledge and affluence, industrial/technological development unmoderated by either the will or the ability to consider the well-being of the larger society, rising population and resource utilization levels, and an expanding have-have not gap, both between nations and within the U.S.A.

If this conclusion regarding the essentially systemic nature of the more pressing societal difficulties of our time is valid, the role of education is of central importance for the achievement of a desirable future. The needed changes cannot be manipulated by top-down strategies of management, but must come by means of an aware and skilled infrastructure in society, one that understands the various threats facing society and yet has the courage, the will, and the skill to make the necessary changes--painful though they will be--in order for the democratic order to remain viable. It means that although fragmented and piece-meal approaches will continue, it is essential that new types of collaborative multi-agency and public-private approaches, aimed at systemic reform, also be launched.

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[*] Representative reports of this research (all available from the SRI/EPRC, Menlo Park, CA 94025) are:

W. W. Harman, "Alternative Futures and Educational Policy"

W. W. Harman and Mae Rosenberg, "The Most Critical Problems Facing Education Today"

W. W. Harman and T. C. Thomas, "A Crucial Role for the National Institute of Education"

O. W. Markley, D. A. Curry, and D. L. Rink, "Contemporary Societal Problems"

O. W. Markley, "Alternative Futures: Contexts in which Social Indicators Must Work"

R. F. Rhyne, "Projecting Whole-body Future Patterns - The FAR Method"

In more specific terms, the following representative trends and corrective societal responses appear relevant to NIE planning:

trend	corrective response
unregulated growth of consumption of physical commodities	ecological sensitivity, broadly defined, involving appropriate regulation of industrial growth and attitudes of moderation
accelerating rate of change in society, symptoms of "future shock"	"recurrent" education, teaching of generalized and flexible problem-solving, and other "higher level" skills (as defined in problem Ad-5, Appendix B)
transition from an industrial, production-oriented society to a post-industrial, service-oriented society	development of new social institutions and career patterns less tied to a production-oriented economy
financial squeeze on schools and militant teacher unionism	same as above, with humane application of highly cost-effective educational technology
over-abundance of trained manpower for conventionally defined jobs (especially in education)	same as above, with training that is "generically" rather than specifically oriented
increasing dissidence from constituent groups outside the mainstream of society (both "have nots" and "have lots")	increasing pluralism with an emphasis on cultural unity through constructive change--especially as regards multi-cultural approaches to education for the disadvantaged

increasing "consumer advocacy" and distrust of "the enlightened paternalism of elites"	institutional reform offering increased consumer choice of basic alternatives (including public education)
increasing concern about planetary problems and national isolationism and/or national security	a shift from deterrance by force and economic domination to planetary collaboration (possibly fostered by multi-national educational institutions)

Although there is little controversy regarding the basic validity of these trends, considerable disagreement exists regarding how immediately they must be dealt with. Therefore it is essential that Federally sponsored R&D in education and related areas reflect these realities.

Research Method and Rationale

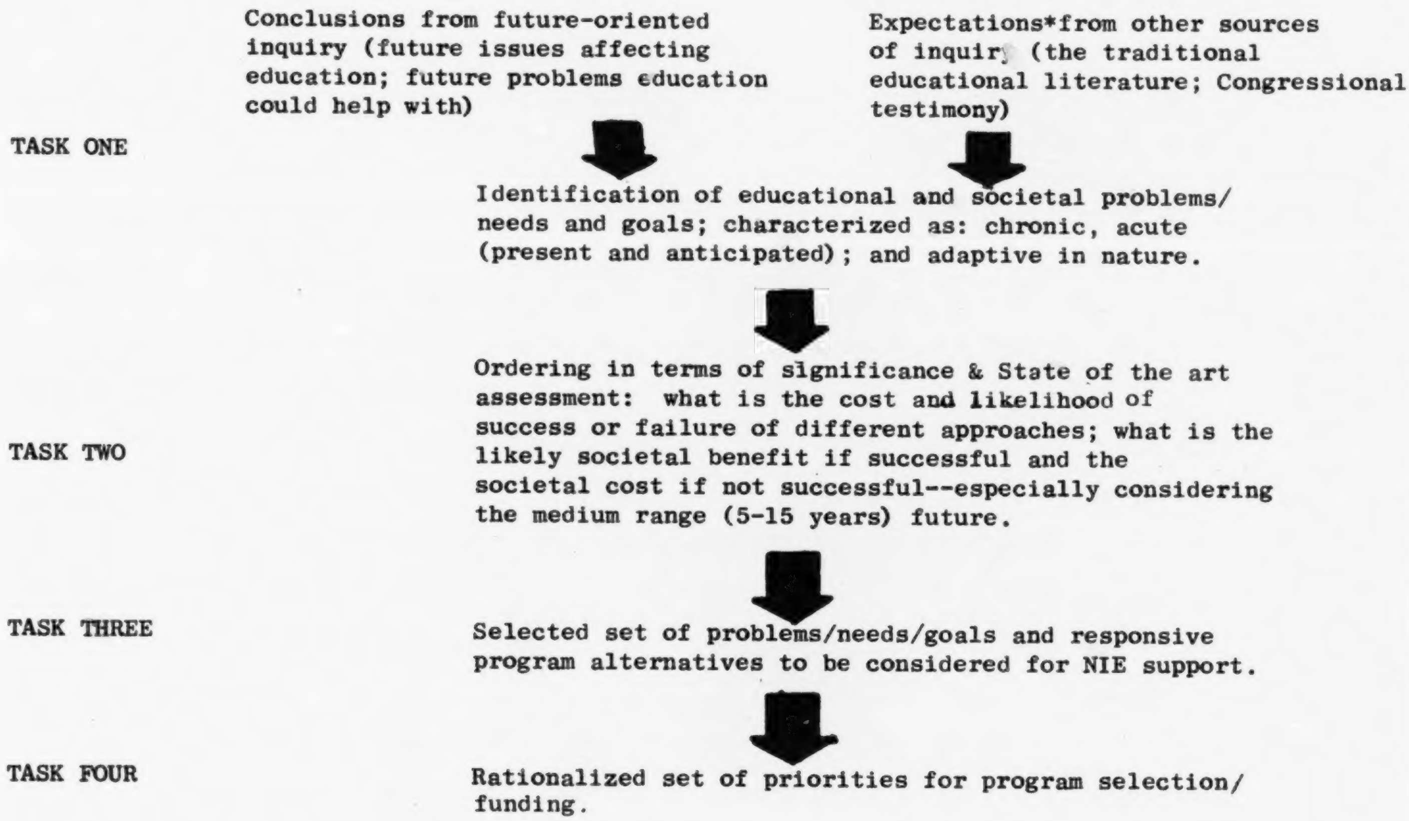
Rationale

The overall approach and rationale that we are pursuing for the development and selection of NIE program initiatives is diagrammed on Chart 1. The thrust of this approach (using the language of "facet analysis") is to determine the $\left\{\begin{matrix}\text{gain}\\ \text{loss}\end{matrix}\right\}$ of societal well-being that might result if the $\left\{\begin{matrix}\text{need}\\ \text{problem}\\ \text{goal}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{is}\\ \text{is not}\end{matrix}\right\}$ adequately dealt with in an $\left\{\begin{matrix}\text{anticipatory}\\ \text{crisis-oriented}\end{matrix}\right\}$ mode. To accomplish this, it is necessary to identify emerging problems whose future resolution will need the products of long lead-time research. Toward this end we have found it useful to distinguish between chronic, acute, and adaptive problems.

Chronic problems (or goals or needs) are those that seem to have existed in the past and are expected to exist in the future. Since societal conditions vary, the amount of attention paid to a given chronic problem changes over time. Currently salient examples are the seemingly inadequate competence of many teachers, and insufficient knowledge of the learning process.

CHART 1

RATIONALE FOR DEVELOPMENT OF NIE PROGRAM SELECTION



Conclusions from future-oriented inquiry (future issues affecting education; future problems education could help with)

Expectations*from other sources of inquiry (the traditional educational literature; Congressional testimony)

TASK ONE

Identification of educational and societal problems/ needs and goals; characterized as: chronic, acute (present and anticipated); and adaptive in nature.

Ordering in terms of significance & State of the art assessment: what is the cost and likelihood of success or failure of different approaches; what is the likely societal benefit if successful and the societal cost if not successful--especially considering the medium range (5-15 years) future.

TASK TWO

TASK THREE

Selected set of problems/needs/goals and responsive program alternatives to be considered for NIE support.

TASK FOUR

Rationalized set of priorities for program selection/ funding.

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*Expectations that are different from what R&D has been tasked with or delivered previously.

Acute problems are those which appear to be of critical immediate importance, either due to public perception and/or political definition, or due to systematic analysis by relevant experts. Current examples include education for the disadvantaged, and disaffection with education among various youth constituent groups (leading to discipline problems, absenteeism, and dropping out).

Adaptive problems are more difficult to define, but essentially concern the difficulties (for both persons and institutions) that stem from the accelerating rate of change that is experienced by virtually all sectors of society. The growth of an obsolescent work force, and the various pathologies that Toffler labeled "future shock" are but two illustrations of adaptive problems. The importance of this concept for policy planning and R&D programming stems from the recognition that most adaptive problems are the results of systemic changes in society, and that if they are not identified and appropriately dealt with, they are likely to become acute in ways that effectively prevent systemic approaches from being applied without enormous societal disruption or investment of resources.

It is a truism that most educational R&D in the past has oriented itself primarily to the solution of chronic problems of education. Where acute problems were attacked, they tended to be researched in parallel with crisis-oriented operational programs, hence little opportunity existed to realize the benefits of mature R&D products before societal disenchantment with institutional solutions set in.

The general approach, then, is (1) to structure important education-related problems, needs, and goals in terms of these three constructs; (2) to analyze them in terms of their "down stream" significance to education and society (considering the state of the art and the welfare of target groups); and (3) to identify specific areas and high leverage approaches for immediate investigation. (It goes almost without saying that the traditional concerns and methods of educational R&D programming should continue to be supported at some level. The present approach was selected to assist NIE to more adequately meet the demands for educational R&D that makes a difference in the resolution of the difficult problems facing education and society.)

Research method for Task I

The needs assessment of Task I was conducted in three steps: (1) listing of issues relating educational and societal problems/needs/goals (present and future); (2) rank ordering of listed issues; and (3) development of selected issues into goals for educational R&D.

The initial list of problems was drawn from relevant congressional testimony, the literature relating to the history of education (seeking changing "phases" or patterns of educational and educational R&D practices and objectives), the literature relating to short-comings of past educational R&D practice, and the literature relating to problems of the future. The composite list is presented in Appendix A; a listing of selected items from Congressional testimony in Appendix C.

Since more problems were identified than could feasibly be developed given the available time and expertise, the list was divided into three priority rankings.

The first rank contained those issues that we considered most important, that similar efforts by others might not cover, and about which we had developed some knowledge. The second rank contained items that would have been developed if we had had sufficient time, or that we might develop if similar efforts by others should be found not to cover them. Problems in the third rank were considered as being of less immediate importance. The rankings of the composite list are also given in Appendix A.

The development of the selected issues took the form shown on the sample work-sheet (page 8). The aim of the documentation section of the work-sheet was not to be inclusive, but rather to point to one or two principal sources likely to be most useful in the state of the art assessment (task II), or to provide immediate support for points made in the analysis section. Both the

Problem Worksheet Ad-6

Flexible Problem Solving Skills in Real-World Situations

Adaptive

Levien Program Area I

Problem Description

If students are to be adequately equipped to deal effectively with the rapidly changing problems and environment of the future, and if society is to enjoy a competent infrastructure, the development of suitable problem solving skills is of crucial importance.

Documentation

Especially salient works are:

Harman, W. W. "Alternative Futures and Educational Policy" Menlo Park, Calif.: Stanford Research Institute, 1970 (dealing with why this concern is of vital importance from a futures perspective).

Michael, D. N., "The Unprepared Society: Planning for a Precarious Future." New York: Basic Books, 1968 (dealing with the importance of focusing on the training of youth elites in flexible problem solving skills).

Coleman, J. C., "The Children have outgrown the schools." Psychology Today, Feb. 1972 (dealing with the changing kinds of extra-school experiences and needs that youth of today have; concluding with a rationale for education that provides direct, not vicarious experience, the ability to integrate diverse kinds of information, and to practice problem solving in a variety of meaningful environments).

Analysis

From a variety of perspectives there is a clear-cut need for educational practices that offer direct rather than vicarious, extra-school rather than intra-school, and generalized rather than specialized learning experiences. The history of the progressive education movement indicates that these objectives will be difficult to realize; the experience of various work-study programs indicates that the approach of more or less simply putting the student into the adult world of work as conventionally defined is an unsuitable one for these purposes. Serious study therefore needs to be undertaken, both of the history of the progressive education movement, and of presently feasible approaches which have promise as ways to provide these kinds of educational experiences and skills.

Goals

- To increase the degree to which conventional educational practice can feasibly provide educational experiences which lead to flexible problem solving skills in the real-world and in environments which are unfamiliar.

- To identify the principal variables on which effective flexible, or generalizable problem-solving skills are based, and how they can best be imparted to different types of students.

documentation and the analysis sections were provided to clarify the cryptic statement of the goals that were developed.

All of the worksheets developed to this point are presented as Appendix B.

One final comment about the approach. The identification and discussion of goals for education and educational R&D, exclusive of operational programs by which these goals might be achieved necessarily means that goals which are apparently conflicting will be developed. A good example is the need for education to contribute to more effective enculturation (the teaching of and socialization into the traditional culture) on one hand, and more effective acculturation (the teaching of culture-changing reforms that deal with emergent societal problems) on the other. Additionally, many goals were developed which necessarily will remain at a high level of abstraction (e.g., the goal of teaching "higher level skills" or of providing equal educational opportunity) until the succeeding tasks (state of the art assessment and development of program alternatives) are completed.

Selected Problems and Developed Goals

Below are listed the education-related problems that we chose to develop, and the corresponding goal statements. In each case a designation as to the one or more NIE Program Areas* in which they most closely fall are listed in order to facilitate insertion into the ongoing work of the NIE Planning Unit. Where the meaning of either the problem label or the corresponding goals is unclear, the reader is referred to the relevant worksheet in Appendix B where--although brief--the issues are developed at more length.

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*The Program Areas referred to are those designated by Levien's report, "National Institute of Education: Preliminary Plan for the Proposed Institute." They are: (I) Alleviating Major Educational Problems
(II) Advancing Educational Practice
(III) Strengthening Education's Foundations
(IV) Strengthening the R&D System

Chronic Problems

1. Broad conflict over goals, practice, and nature of education (Levien program area I)
    - To develop an informed educational statesmanship in order that much of the conflict can take place in the political and public arena rather than in the schools themselves.
    - To develop more competent educational leadership on all levels.
    - To create sufficient diversity in order that the different needs of different groups can be met without destructive conflict.
2. Inadequate linkage of R, D, & A in education (Levien program area IV)
    - To strengthen the linkage between R, D, & A.
    - To develop a market mechanism for the delivery of R&D services to consumers at the local level.
3. Inadequate use of knowledge from related fields (Levien program area III)
    - To obtain more information regarding the past successes and failures of multi-disciplinary research and the identification of the causes therein.
    - The fostering of multi-disciplinary research teams in educational R&D.
4. Ineffective use of educational resources (Levien program area I)
    - To examine cost-benefit relationships inherent in present uses of educational resources.
    - To research the possibilities of new technologies for education.
    - To discover economies of scale, and so on, which might be useful within the present school system; and differentiate between economies which are appropriate for different teaching-learning environments.
5. Lack of competent educational leadership at all levels (Levien program area II)
    - To obtain knowledge about the circumstances which develop and encourage (or discourage) leadership in education.

6. Needs of special groups (Levien program area II)

- To gear the educational system to handle the special needs of certain segments of the population.
- To develop specialized capabilities in educational personnel to deal with specific local conditions.
- To develop resources and inputs for the special needs of localities.
- To examine the different roles appropriate to the formal educational system in different circumstances.

Chronic Problems possibly becoming Acute

1. Lack of diversity of educational approaches (Levien program area II)

- To develop diversity within existing forms and structures of the school.
- To investigate alternatives to traditional schooling.
- To explore existing obstacles to diversity, such as state laws, standardized testing, etc.
- To meet the special needs of students of minorities (racial and ethnic), in isolated or rural areas, or the handicapped.

2. Inadequate training of R&D skills (Levien program areas II, IV)

- To broaden the definition of "R&D" as it is used in education.
- To develop additional models of training R&D related skills.
- To develop additional institutional mechanisms for R&D training.

Acute Problems

1. Equal educational opportunity (Levien program area I)

- To define the extent to which formal education is a determinant of life opportunity.
- To gear the educational system to handle the special needs of certain segments of the population.
- To determine the elements of individual competence and how school programs can contribute to their realization in students.
- To develop a variety of educational programs that build on student strengths and thereby enhance their potential.

2. Increasing the life opportunities of the disadvantaged (Suggested program area V)

   - To explore transportability of existing successful compensatory programs.
   - To critically examine the concept "disadvantage" and to investigate its characteristics.
   - To explore the inadvertant classification of linguistic or cultural differences as inherent disadvantages.

3. Development of a tradition of "moral inquiry" in educational R&D (Levien program area III)

   - To increase understanding of how values and larger welfare considerations can more effectively become part of the policy and R&D process in education.
   - To increase the ability of all actors in education-related fields to incorporate moral considerations into their problem solving activities.

4. Lack of student interest, commitment, dropouts, absenteeism (Levien program area I)

   - To define the terms "lack of student interest"; "dropout"; "absentee"; "lack of commitment" in other than subjective or emotive, non-quantifiable expressions.
   - To devise a methodology for sampling the level of existence of these conditions throughout the student population.
   - To identify and describe those individual and environmental causes of these conditions, including non-school causes and the interaction between personality and environment.
   - To conceive, organize and test programs for relief of the condition that schools might carry out; to conceive and recommend programs for relief of the condition that other than school agencies should administer.

5. The relationship between education and employment-preparation for work. (Levien program areas I, II)

- To define the extent to which formal education is a determinant of life work (employment) patterns.
- To describe in both quantitative and qualitative ways the manner in which school leavers enter the economy.
- To identify patterns of social and economic change (national and global) that impinge on the problems of labor force entry.
- To identify and describe personal and social attitudes about human economic function that do and will affect present and future labor force composition and performance.
- To consider the effects of probable technological change on labor force needs.
- To determine the extent to which the employer community (the determinors of employability) actually rely on the educational system to provide a trained work force.

6. Inadequate supply of diverse/competent educational R&D manpower (Levien program area IV)

- To recruit and train an adequate supply of R&D manpower, through both schools of education and ongoing educational research projects.
- To foster research on the part of teachers and other staff in the field.
- To explore available manpower and research training potential of related fields.

7. Development of Multi-Agency Approaches to education-related problems (Suggested program area V)

   - To improve the state of the art and to develop a strong tradition of multi-agency approaches to education-related problems.
   - To develop, if feasible, the Development of Multi-Agency Approaches as a major Program Area for NIE.

8. Erosion of commitment to scholarly inquiry (Levien program area I)

   - To increase emphasis on critical thinking in college and especially graduate school, aimed not so much at vigorous scientism, but at critical reasoning and the development of conclusions about how to proceed in the face of relative ignorance.
   - To increase emphasis on the rigorous study of real-world issues of apparent relevance to students.

Adaptive Problems

1. Critical societal problems and needs of the future (Levien program areas I, III)

   - To increase the quality of research related to the identification and analysis of critical societal problems and needs of the future.
   - To improve the state of the art in translating anticipated societal problems and needs into program planning and evaluation.
   - To make educational R&D and educational practice more responsive to future societal problems.

2. Educational policy implications of "radical" discoveries (Levien program area IV)

   - To develop mechanisms and more adequate methods for systematically examining educational policy implications of "radical" discoveries.

3. Assessment and regulation of emerging psycho-technologies (Levien program areas I, III)

   - To develop the state of the art in psycho-technology assessment and regulation, especially as it relates to education.
   - To foster knowledgable public participation in the process of psycho-technology assessment and regulation.

4. Metaproblems having educational implications (Levien program area III)

   - To sponsor inquiry on how best to relate meta-issues of society to educational policy considerations.
   - To identify contending conceptions regarding the nature of man and society in the present and the future.
   - To identify conceptions regarding the nature of man and society that have promise as ways to help unify society in a time of transition.

5. The development of "higher level" skills (Levien program area II)

   - To identify the kinds of "higher level" skills with which citizens can avoid "future shock."
   - To discover effective ways in which such skills can be learned.
   - To establish appropriate ways for public education to teach politically sensitive concepts and skills.

6. Flexible problem solving skills in real-world situations (Levien program area I)

   - To increase the degree to which conventional educational practice can feasibly provide educational experiences which lead to flexible problem-solving skills in the real world, and in environments which are unfamiliar.
   - To identify the principal variables on which effective flexible, or generalizable problem-solving skills are based, and how they can best be imparted to different types of students.

Alternative Approaches to Tasks II, III, and IV

As requested, the SRI/EPRC conducted the analysis specified for Task I independently of either the NIE Planning Unit or other contractors. Although it is not clear that it would be advantageous to do so, one approach would be to continue this arrangement for the remaining tasks.

A second approach would be to conduct a planning conference in which all of the goals identified by the various groups participating in Task I would be discussed, prioritized, and assigned for development into program alternatives, each group working independently.

A third approach would be for the SRI/EPRC team (as well as others) to work more intimately and over a longer period of time with the NIE Planning Unit--partly at the NIE Planning Unit's location in Washington, D. C., and partly at SRI's California facility.

Regardless of which approach is selected, a tentative outline of our final report (as requested by the Specifications Memorandum) is as follows.

I. Introduction and statement of work

II. Analysis of selected goals for educational R&D
    A. past history of attempts to realize the goal
    B. approaches that have and have not proved successful
    C. approaches or strategies that seem promising

III. Development of program alternatives for NIE
    A. The operating context of NIE, and implications for its management
        1. The societal context (the U. S. A. and the world)
        2. The institutional context (the Congress, HEW, and USOE)
        3. The client context (the public educational system)
        4. The temporal context (the past, present, and future)
        5. Future influences on educational policy
    B. The development of program alternatives that meet contextual constraints and are responsive to identified goals/needs/problems

IV. Selection of suggested program initiatives

  A. Criteria imposed on the selection process

  B. Selections thus made

Appendix A

Below are listed the problems or needs that were considered in the needs assessment. The rankings refer to their relative priorities as described in the main text (all rank "1" problems are developed in Appendix B, and indicated by categories: C(Chronic), A(Acute), Ad(Adaptive), and number).

I. Chronic Problems

Rank	Levien program area I
3	Parental concern and revolt against disruption, controversial practice, and youth culture.
3	Poor quality of education generally.
2	Reading.
2	Unintended psychological consequences of schooling.
2	Widespread teacher frustration.
1	Broad conflict over purpose, goals, and nature of education. (C-1)
3	The role of schooling in education.
1	Ineffective use of educational resources. (C-4)
	Levien program area II
1	Lack of competent educational leadership at all levels. (C-5)
2	Lack of professionalization among teachers.
2	Lack of competence among boards and administration.
2	Poor teacher training.
2	Administrative structure problems.
1	Lack of diversity of educational approaches. (C-to-A-1)
2	Lack of role models.
2	Inadequate graduate and professional education.
3	Outmoded fact/knowledge curriculum.
2	Problems of educational renewal.
2	Teacher drop-out problem.
1	Needs of special groups. (C-6)
2	Affective climate of classroom.
2	Accountability.
1	Inadequate training of R&D skills. (C-to-A-2)

Rank	Levien program area III
2	Triviality and parochial simplicity of educational theory.
2	Inadequate outcome evaluation.
3	Lack of a strong historical record.
2	Lack of knowledge about crucial classroom variables and effective teaching.
3	Lack of knowledge about learning.
1	Inadequate use of knowledge from related fields. (C-3)
2	Inadequate political science knowledge base relating to educational renewal.
	Levien program area IV
1	Inadequate linkage of R, D, & A in education. (C-2)
2	Inadequate testing and evaluation of programs and innovations.
2	Incentives regarding risk taking and innovation.
1	Inadequate training of R&D skills. (C-to-A-2)
	Suggested program area V
2	International education.

II. Acute Problems

Rank	Levien program area I
1	Lack of student interest, commitment, dropouts, absenteeism. (A-4)
1	Equal educational opportunity. (A-1)
3	Financial problems.
1	Erosion of commitment to scholarly inquiry. (A-8)
	Levien program area II
1	Relationship between education and employment preparation for work (A-5)
	Levien program area III
1	Development of a tradition of "moral inquiry" in educational R&D. (A-3)
	Levien program area IV
1	Inadequate supply of diverse/competent educational R&D manpower. (A-6)
2	Poor dissemination of knowledge and information.
2	Conflicting notions of the appropriate R&D model.

Suggested program area V

1 Increasing life opportunities of the disadvantaged (A-2)
1 Development of multi-agency approaches to education-related problems. (A-7)
2 Integrated community services.
2 Separation of student from society.

III. Adaptive Problems

Levien program area I

2 Racial and political radicalism in schools.
3 Divisive effects in terms of values and opportunities.
2 The relationship between schools and society.
2 Societal needs/goals and educational practice.
1 Flexible problem-solving skills in real-world situations. (Ad-6)
1 Assessment and regulation of emerging psycho-technologies. (Ad-3)
1 Critical societal problems and needs of the future. (Ad-1)

Levien program area II

3 Lack of educational statesmanship.
1 The development of "higher level" skills. (Ad-5)
2 Inadequate preparation for the work force.

Levien program area III

2 Lack of knowledge about "higher level" skills that are needed.
2 Lack of knowledge about effects of mass media.
2 Lack of integration between technology and education and inadequate use of existing technology and hardware.
1 Metaproblems having educational implications. (Ad-4)
1 Assessment and regulation of emerging psycho-technologies. (Ad-3)
1 Critical societal problems and needs of the future. (Ad-1)

Levien program area IV

1 Educational policy implications of "radical" discoveries. (Ad-2)

APPENDIX B

Problem Worksheets

Problem Worksheet C-1

Broad Conflict Over Goals, Practice, and Nature of Education

Chronic Levien Program Area I

Problem Description

Education is in turmoil, seems unable to reform itself, partly due to "the state of the art" but also to a conflict over the goals, practice and the nature of education.

Documentation

"Underlying the demise of the current /educational reform/ movement... has been its inability to face and resolve various unexamined conflicts among leading reform proposals, such as those for compensatory education, integration, decentralization, community control, radical pedagogical reform, and teacher professionalism." (Katz, Michael, "The Present Moment in Educational Reform, Harvard Educational Review, August 1971, p. 342)

"...One problem that lies at the root of many (indeed, nearly all) other educational problems is a fundamental disagreement over what education is and how it is best accomplished. This is not a superficial disagreement, but one that lies deeply embedded in fundamental concepts." (Davis, Bob, "Program Proposals for Improving the Quality of Educational Experiences," paper submitted to the NIE Planning Unit, December 1971, pp. 24-25)

"It is obvious from our findings that if the continued existence of schools were dependent upon consensus on educational goals among teachers and their constituencies of mothers and students, the schools would not survive." (Wilder, David E. and others, Actual and Perceived Consensus on Educational Goals between School and Community, OE Contract Report, December 1968)

Analysis

Lack of agreement on educational goals and practice or on the nature of education itself is a perennial condition, and is not necessarily harmful. The problem arises when that lack of agreement leads to broad conflict that taxes the time and energy of educators, brings about a stalemate in educational reform, leads to policies or programs which undermine the capacity and morale of teachers, or decreases public confidence in the educational system. Education is swept first one way and then another by changing moods, caught between legislative mandates and an aroused public, pressured to reform itself in opposing directions by opposed interest groups, without my clear perspective on how it can or should reform itself.

Problem Worksheet C-1

Broad Conflict Over Goals, Practice, and Nature of Education (Continued)

Goals

- To develop an informed educational statesmanship in order that much of the conflict can take place in the political and public arena rather than in the schools themselves.
- To develop more competent educational leadership on all levels.
- To create sufficient diversity in order than the different needs of different groups can be met without destructive conflict.

Problem Worksheet C-2

Inadequate Linkage of Research, Development and Application in Education

Chronic

Levien Program Area IV

Problem Description

Many of the problems that prevent federally sponsored R&D in education from being useful at the applied level are believed to stem from the fact that there is over-much specialization and inadequate linkage of the various parts of the "linear" R&D cycle.

Documentation

The communication of most research results is oriented more toward professional colleagues than toward potential consumers. (Gideonse, H. D., Educational R&D in the United States, USOE, 1969)

When asked, most applied personnel at the local level claim to rely most on face-to-face contact and least on published research studies as the source of ideas for innovation in the public schools. (Rittenhouse, C., "Innovation Problems and Information Needs of Educational Practitioners," Stanford Research Institute, Menlo Park, California, May 1970)

R. Havelock has presented several different models which stress the importance of this linkage, and how it might be strengthened. (Havelock, R., "Planning for Innovation," University of Michigan, 1971)

Analysis

The educational development network being established by USOE offers potential to increase the effectiveness of the linkage between R&D and application in public elementary and secondary education, but it is not clear that this network will survive either the coming of a new Commissioner or the displeasure of the Congress regarding the lack of authorizing legislation.

Where the profit motive is an essential part of linking research to application (e.g., in the pharmaceutical industry) "linker personnel" (e.g., the drug retailers) are assigned to key linkers in the cycle, and other organizational structures are invented as needed. This suggests that one possible approach would be to foster the development of a market mechanism for the delivery of applied R&D services to local educational agencies.

Goals

- To strengthen the linkage between research, development and application
- To develop a market mechanism for the delivery of R&D services to consumers at the local level

Problem Worksheet C-3

Inadequate Use of Knowledge from Related Fields

Chronic

Levien Program Area III

Problem Description

Education, as all disciplinary specialities, tends to isolate itself from relevant knowledge outside its special domain, in spite of the need for such knowledge.

Documentation

Cronbach and Suppes discuss this problem and outline paths for future research. As this is a much discussed problem, undoubtedly other literature is relevant. (Cronbach and Suppes, Research for Tomorrow's Schools, New York, MacMillan, 1969, pp. 256-271)

Analysis

Much of the recent experience with university-based multidisciplinary research by persons with a basic research orientation has proven very unsatisfactory. It is not clear whether the answer lies more with more adequate training, or with federal targeting of research objectives (either basic or applied, conclusion-oriented or decision-oriented) which would tend to force investigations in areas where no one disciplinary speciality would suffice.

Given the scarcity of research funds in general, a danger to be avoided would be "the more the better" as regards general cross-disciplinary research efforts. The task would seem to be one of insuring the asking of significant questions and the development of multidisciplinary research competence by teams rather than by individuals.

Goals

- To obtain more information regarding the past successes and failures of multidisciplinary research and the identification of the causes therein.
- To foster multidisciplinary research teams in educational R&D

Problem Worksheet C-4

Ineffective Use of Educational Resources

Chronic

Levien Program Area I

Problem Description

With the current financial squeeze in education there is a need for more effective utilization of resources.

Documentation

"School systems must employ continuously the results of cost-benefit and cost-effectiveness analyses in order to allocate effectively the resources available to education." (Innovation in Education, Committee for Economic Development, p. 13) "The pressure of enrollments nationally is declining and the general supply of teachers is increasing at the same time that analytical techniques for better allocation of school resources are becoming available. Now that they are released from the struggle to absorb large numbers of additional students, many schools have the opportunity to make serious efforts to decide ong programs of high and low priorities." (p. 19) "If the quality of schooling is to be raised at a cost that is acceptable in terms of present school expenditures, a breakthrough is required in instructional procedures and instructional organization." (p. 28)

"Since vast resources are being placed at the disposal of educational authorities, there is a heightened interest in the increased effectiveness which these resources are supposed to produce." (Morphet, E. L. and C. O. Ryan, Planning and Effecting Needed Changes in Education, Citation Press, New York, 1967, p. 311.)

Analysis

"The history of economic activity indicates that improvements in the allocation of resources under existing technology yield significant but not major advances in productivity. Hence, while we strongly urge the development and use of educational systems, we also maintain that truly impressive gains in output will occur as and only as school districts make innovations in their programs." (Innovation in Education, CED, P. 61)

A more effective use of educational resources requires both research into present uses and resulting costs and benefits, and possible alternate uses; as well as research into new technologies, organization, and so forth which might radically alter the range of available alternatives in use of resources for education.

Goals

- To examine cost-benefit relationships inherent in present uses of educational resources.
- To research the possibilities of new technologies for education.
- To discover economies of scale, and so on, which might be useful within the present school system; and differentiate between economies which are appropriate for different teaching-learning environments.

Problem Worksheet C-5

Lack of Competent Educational Leadership at All Levels

Chronic Levien Program Area II

Problem Description

The increasing demands from many sources upon educational leaders--testing their flexibility and creativity--require more systematic and effective approaches to their selection and development.

Documentation

"The first and foremost factor in planning and effecting needed changes in a school is that of developing creative and committed leadership." (Morphet, E. L. and C. O. Ryan (Eds.), Planning and Effecting Needed Changes in Education, 1967, p. 166)

"With few exceptions, the furnishing of stimulation and direction by state department personnel is more of a hope than a reality. In many states these personnel are too few in number and too overburdened with other duties to exert much leadership. ...One explicit objective...should be a substantial strengthening of the instruments of educational leadership at the state level." (Ibid, pp. 189, 154.)

"The city and suburban areas of 1980 will find themselves in a state of hopelessness as far as effective educational improvements are concerned, unless educational leadership assumes a more influential position in the city and suburban arrangement." (Ibid, p. 232)

Edward Nyquist suggests "the allocation of high priorities to leadership activities rather than to regulatory and supervisory functions necessary as the latter are." (Ibid, p. 310)

Analysis

Educational leadership at all levels within the educational system is called upon to deal with the following: (1) to facilitate consideration and adoption of innovations, (2) to cope with the immanent changes (e.g., the influx of federal funds, intra-state levelling up, etc.), (3) to provide coordination between levels which is presently lacking, (4) to change the public image of the schools (for such ends as recruitment of more competent people into the teaching profession, increasing community-school cooperation, and so forth).

In order to develop this leadership, the appropriate role for NIE seems to be one of collecting data on successful and unsuccessful ways of (a) recruiting potential leaders, (b) training them, (c) fostering their leadership potential, and (d) letting them be effective. Analysis of such data might well lead to possible national strategies for developing educational leadership, as well as suggestions for state and local educational authorities (the latter, however, are often more effective if developed locally).

Goal

- To obtain knowledge about the circumstances which develop and encourage (or discourage) leadership in education.

Problem Worksheet C-6

Needs of Special Groups

Chronic

Levien Program Area II

Problem Description

The educational establishment must serve the diverse needs of special segments of the population: urban, rural, suburban, central city, and so forth; also, many ethnic and other special-interest groups with their unique problems, the handicapped, etc.

Documentation

The lack of preparation of outside administrators and teachers who come into rural areas results in their superficial acceptance but a deep resentment on the part of the students and the community. (Bowkett, Norma S., "An Assessment of Educational Needs in Alaska, ED 054888)

Rural people place a traditionally low value on education (formal), and are highly suspicious of 'foreign' ideas, suggestions or assistance. (Hughes, Larry W. and D. L. Spence, "Attitudes and Orientations of Rural Groups and Effects on Educational Decision-making," ED 054892)

Minority groups are alienated from education by white middle class emphasis and focus. (Schmidtlein, Frank A., The Programs of the 15 Regional Educational Labs," Journal of R&D in Education, 3, (2), Winter 1970, pp. 18-38.) Black students receive inferior and irrelevant education due to 'white-washing.' Mexican-Americans get labelled mentally handicapped or retarded because of the language difference. Indian children divorced from their culture grow up to join an adult population with the highest poverty, unemployment, alcoholism, and crime rate of any ethnic group in the U.S. Rural students lose their best teachers to higher paying school districts, have limited educational investment and development because of poverty and conservatism.

Analysis

The existence and social and political salience of many subgroups in our society makes it desirable that the school deal in some fashion with their special needs. Teachers and administrators must be trained especially to work in differentiated areas and/or recruited from the areas themselves. Curricula and teaching methods should be developed that take advantage of the special capabilities and lacks of the target populations. Differential financial and other input needs of these areas must be investigated; also, different educational outputs, with particular local significance, must be allowed for.

Problem Worksheet C-6

Needs of Special Groups (Continued)

Goals

- To gear the educational system to handle the special needs of certain segments of the population.

- To develop specialized capabilities in educational personnel to deal with specific local conditions.

- To develop resources and inputs for the special needs of localities.

- To examine the different roles appropriate to the formal educational system in different circumstances.

Problem Worksheet C→A-1

Lack of Diversity of Educational Approaches

Chronic → Acute?

Levien Program Area II

Problem Description

Our present educational system exhibits a high degree of uniformity, despite regional, ethnic, and other differences in the population. "Our present educational system is unable to cope effectively with diversity." (Davis, p. 11)

Documentation

"The reasons for creating diversity are both numerous and compelling": (1) to deal with the goal dissensus, and (2) "One of the clearest facts about students is that different students have different needs, different strengths, and different weaknesses, different responses to any specific kind of experience or situation." (Davis, p. 21)

"I think that we have to broaden the range of opportunities, the forms of schooling available to individuals, so that they can sort themselves into the educational form that is relevant to their needs." Also, diverse paths, in substance and time, must be provided through education. (Levien, Hearings on NIE, p. 219).

"I would rather see a school that was constructed on the premise that a variety of points of new were represented within schools. In fact, the school curriculum should encompass all that is legal and sanctioned in society in its full diversity, including religious points of view, political points of view, various issues and points of view on morality." (Allen, NIE hearnings, p. 88).

Analysis

The need for diversity, both to satisfy pluralistic goals and to deal with individual differences between students, is a very real one in our educational system today. This diversity should be developed in terms of many components of the system, including: (1) curricula, (2) teacher roles, (3) timing of school in relation to work/leisure, (4) alternative school organizations, (5) relationships of individuals to the system, and so forth.

Goals

- To develop diversity within existing forms and structures of the school.
- To investigate alternatives to traditional schooling.
- To explore existing obstacles to diversity, such as state laws, standardized testing, etc.
- To meet the special needs of students of minority racial and ethnic backgrounds or in isolated and rural situations.

Problem Worksheet C→A-2

Inadequate Training of R&D Skills

Chronic → Acute?

Levien Program Area II, IV

Problem Description

The training of research skills is almost always conceived in the academic-rigorous-science model. But effective educational renewal requires a broad range of research, development, and innovation skills which are not typically taught.

Documentation

The Far West Regional Educational Laboratory has established a consortium to teach broadly conceived R&D skills for educational professionals and para-professionals. Other similar efforts may be underway.

The literature that is relevant to this area needs to be surveyed as part of Task II.

Analysis

The university orientation regarding the training of all graduate students in academically oriented research is strongly entrenched and is not likely to be discarded. Additional models of training in R&D related skills are needed, as are alternate institutional mechanisms to do so.

Optimally every person involved in the educational enterprise should be considered a researcher, if the meaning of that term were suitably defined, and the teaching of appropriate skills made part of their training. As with other significant reforms in education, this has political implications, since meaningful R&D at the applied level inevitably leads to organizational stresses as new innovations are attempted.

Goals

- To broaden the definition of "R&D" as it is used in education.
- To develop additional models of training R&D related skills.
- To develop additional institutional mechanisms for R&D training.

Problem Worksheet A-1

Equal Educational Opportunity

Acute

Levien Program Area I

Problem Description

A variety of circumstances continue to prevent the attainment of educational opportunities to different students; these include: racial bias, regional and community disparities in financial resources, disparities in student SES and family situation, and so on.

Documentation

The Coleman Report (Equality of Educational Opportunity, OE-38001, 1966) is the most comprehensive report on inequalities in schools, both inequalities of input and inequal outcomes.

Another major source of documentation on this problem is the series of volumes resulting from the hearings of the U.S. Senate's Select Committee on Equal Educational Opportunity, U.S. Govt. Printing Office, 1970-

There is a need to "develop the art and science of education to the point that equality of educational opportunity results in satisfactory equivalence of achievement." (Moynihan, NIE hearings, p. 13).

Analysis

The concern about equal educational opportunity stems from the American tradition of equal opportunity, and the comparatively recent societal consensus that the responsibility for providing opportunity falls in large measure upon the schools. Presently, there are indications that equality of opportunity may be defined as equal educational outcomes, on the average, across racial, ethnic, and SES lines. Since the formal educational system depends on so many factors outside of its jurisdiction for results (as student background, motivation, etc.), such a definition would raise unfulfillable expectations, and result in further loss of faith in the public schools.

The appropriate role for the schools seems to be eliminating insofar as possible discrimination within the schools, and an effort to equalize (dollar) inputs to the schools. NIE can research the factors that contribute to equality of educational opportunity, and the ways in which different educational needs can be met.

Goals

- To define the extent to which formal education is a determinant of life opportunity.
- To gear the educational system to handle the special needs of certain segments of the population.
- To investigate to determine the elements of individual competence and how school programs can contribute to their realization in students.
- To develop a variety of educational programs that build on student strengths and thereby enhance their potential.

Problem Worksheet A-2

Increasing the Life Opportunities of the Disadvantaged

Acute

Suggested Program Area V

Problem Description

Eliminating the 'disadvantage' suffered by a segment of the population is a foremost national priority. To date, the main approach that has been tried is compensatory education.

Documentation

"At the same time that compensatory programs were being launched, new research began to suggest that in fact the familiar inputs of schooling and relatively little effect on pupil achievement, at least by comparison with the powerful effect of the life circumstances of the youngster. Disadvantaged boys and girls, 'born and raised in family and peer group surroundings not conducive to high' educational achievement, could not be expected to benefit very much from changes in factors that have little effect on achievement. By this analysis, compensatory programs, at least as they have been tried to date, could not realistically be expected to improve achievement -- although most of their critics agree that they have helped improve the health, nutrition, and socialization of disadvantaged boys and girls. Moreover, the discovery of the powerful educational effects of the first few years of life suggested that wholly different models must be tried -- and far more be learned about learning itself -- if equal education is to be afforded to the disadvantaged." Rpt. of the Natnl Goals R. Staff, p. 93.

See also the problem worksheet on unequal educational opportunity. (I,c)

Analysis

There is a very real question about the utility of the compensatory approach. Of 1200 compensatory programs evaluated by an OE study, 10 were considered successful. (Michael J. Wargo, et.al., *Further Examination of Exemplory Programs for Educating Disadvantaged Children*, 1971, p. iii) The task would therefore seem to be to explore the transportability of those successful programs, rather than to create a large number of new experimental programs. This relative lack of success suggests a much more critical view of the concept "disadvantage" and more basic research to illuminate the nature of the disadvantage.

Goals

- To explore transportability of existing successful compensatory programs.
- To critically examine the concept "disadvantage" and to investigate its characteristics.
- To explore the inadvertant classification of linguistic or cultural differences as inherent disadvantage.

Problem Worksheet A-3

Development of a Tradition of "Moral Inquiry" in Educational R&D

Acute

Levien Program Area III

Problem Description

It is increasingly questioned whether any scientific research can, in fact be "value-free". In the case of educational R&D, however, it seems clear that it cannot. The principal objective of publically supported education is to enhance the ability of citizens to function effectively within the social context of their time in ways that contribute both to their own well-being and to that of the society as a whole. As the objective of NIE is to assist the educational system in this task by means of educational R&D, this necessarily entails a high concern for how both the conduct of educational R&D and its products affect the larger well-being of both individuals and society. Thus educational research is (or should be) essentially a moral inquiry.

Documentation

A variety of books and articles have been written on the ethics of social scientific research, and various professions (but especially psychology) have well articulated ethical guidelines for the conduct of both research and direct services. (See, for example, C. E. Reagan, "Ethics for Scientific Researchers." Springfield, III.: C. C. Thomas, 1969, for a theoretical overview, case studies, and an annotated bibliography.)

A rather different, but relevant literature is to be found in the emerging field of policy science. (See especially G. Vickers, "Value Systems and Social Processes," New York; Basic Books, 1968; and C. W. Churchman, "The Design of Inquiring Systems," Berkeley, California: Space Sciences Labortory, University of California, 1969)

Analysis

A great deal of confusion and ambiguity exists as to just how values or value-related issues can, do, or should relate to the conduct of "scientific" inquiry, and to whether "basic" versus "applied" or "conclusion-oriented" versus "decision-oriented" research is basically different as regards normative concerns. Similarly, confusion and/or conflict exists among professionals as to whether these kinds of concerns can be adequately dealt with by the methods of systems analysis, conducted by experts, or whether they are essentially political in nature, hence amenable only to participative approaches (which could include systems analytic procedures as one element). Although it is undoubtedly unrealistic to expect clear-cut resolutions to these issues, the principles of what might be termed "moral inquiry" (such as consideration of second and higher order consequences for the well being of individuals and society; and inclusion of relevant stakeholders in the research and research policy-making process) can nevertheless be incorporated into the conduct of NIE sponsored activities.

Problem Worksheet A-3

Development of a Tradition of "Moral Inquiry" in Educational R&D (Continued)

Goals

- To increase understanding of how values and larger welfare considerations can more effectively become part of the policy and R&D process in education.
- To increase the ability of all actors in education-related fields to incorporate moral considerations (as defined above) into their problem solving activities.

Problem Worksheet A-4

Lack of Student Interest, Commitment, Dropouts, Absenteeism

Acute

Levien Program Area I

Problem Description

Students are required by law to remain in school for ten to twelve years. An increasing percentage find it economically necessary to continue as students for two, four, or even more years. Persuasion by legal and exhortatory means are employed to persuade students to remain in school, although these means are increasingly successful in the gross statistical sense there is evidence that a large but indeterminate percentage of students continue in a disinterested manner without commitment to the value (relevance) of their studies. Indeed, there is evidence that even for students who remain nominally enrolled the rate of absenteeism reaches twenty-five to fifty percent or higher in some areas.

Documentation

Schreiber, Daniel (ed.), Profile of the School Dropout, Vintage Books, 1968

Analysis

While a larger and larger proportion of the American population retains student status for longer and longer periods of time (and it may be that these curves have reached levels beyond which there will be no more than marginal increase) concern is expressed that students are skeptical of the value of many of their courses, are bored or "turned off" at all levels including college and post-graduate, and are uncommitted to any goals but getting through--being certificated and accepted in the labor market. Unfortunately, there is little baseline data (but a wealth of anecdotal material) to establish the development of the phenomen described. Whether present levels of non-commitment are higher or of a different sort than in the past is not at all clear. However, with the enormous investment of money and student time in schooling it is obviously imperative that the present extent and meaning of non-commitment be established through research and appropriate responses be devised.

Goals

- To define the terms "lack of student interest"; "dropout"; "absentee"; "lack of commitment" in other than subjective or emotive, non-quantifiable expressions.

- To devise a methodology for sampling the level of existence of these conditions throughout the student population.

- To identify and describe those individual and environmental causes of these conditions, including non-school causes and the interaction between personality and environment.

- To conceive, organize and test programs for relief of the condition that schools might carry out; to conceive and recommend programs for relief of the condition that other than school agencies should administer.

Problem Worksheet A-5

The Relationship Between Education and Employment--Preparation for Work

Acute

Levien Program Area I, II

Problem Description

The very high level of unemployment among teenage jobseekers in the United States (18.8% in February 1972) is frequently cited as evidence of unsatisfactory preparation for employment by the schools. At the same time, on the basis of analyses done chiefly in the 1950s and 1960s the value of lengthened secondary and post-secondary education has been defended on the basis of discounted future earnings projections. A major thrust of present U. S. education policy is "Career Education" in which it is assumed that the relationship between education and employment is actual and that appropriate programs suitably implemented will optimize the relationship and reduce or eliminate the social problem of youth unemployment.

Documentation

Cohen, Eli E., and Kapp, Louise (eds.) Manpower Policies for Youth, Columbia University Press, New York, 1966

Carrol, S. J., and Pascal, A. H., "Toward a National Youth Employment Policy," Policy Sciences, June 1971, 159-175.

Fisher, Bernice, Industrial Education, University of Wisconsin Press, 1969

Harbison, rederick and Meyer, Charles, Education, Manpower, and Economic Growth: Strategies of Human Resource Development, McGraw-Hill, New York, 1964.

MacMichael, David C., Career Education--Prognosis for a Policy, EPRC, Stanford Research Institute, 1971.

Venn, Grant, Man, Education, and Work, Washington, D.C., 1962

Analysis

A fundamental educational tension, dating from the debates between Socrates and the sophists, exists over the purpose of education. Is the individual to develop through education his own personality as the chief goal or is he to prepare himself to compete economically? Modern mass education has to some extent blurred the distinction in its development. The ideal has been the production of the broadly educated man or woman who was assumed by the fact of his cultural development to be able to adapt himself to the demands of the economy and society in the business of making a living. Practice has tended to be otherwise, and the ideal has been so long breached that it is now openly depreciated as untenable and even counter-productive. Hence, the assertion that schools fail their students in proportion to the stress they place on the "academic" goal of personal development to the neglect of providing the necessary training to enter the economy.

Problem Worksheet A-5

The Relationship Between Education and Employment--Preparation for Work (Cont.)

Analysis (cont.)

Given the very serious doubts raised by economists and sociologists about the direct and demonstrable relationship between formal education--vocational or general--and patterns of employment, and the implications of continuing rapid technological and organizational change on the national and world economies as well as the important and only partly perceived impact of attitudes toward work and life goals and roles among important segments of American society, it is reasonable to believe that the education problem so simply stated and resolved in the publications of the National Advisory Council on Vocational Education is actually only a part of an enormously complex socio-economic situation. Thus, there exists a need for searching analysis of the myriad sociological, economic, psychological, and operational aspects of this situation and determination of the manner in which the educational system relates to them and can be reasonably expected to contribute to their solution.

Goals

- To define the extent to which formal education is a determinant of life work (employment) patterns.
- To describe in both quantitative and qualitative ways the manner in which school leavers enter the economy.
- To identify patterns of social and economic change (national and global) that impinge on the problems of labor force entry.
- To identify and describe personal and social attitudes about human economic function that do and will affect present and future labor force composition and performance.
- To consider the effects of probable technological change on labor force needs.
- To determine the extent to which the employer community (the determinors of employability) actually rely on the educational system to provide a trained work force.

Problem Worksheet A-6

Inadequate Supply of Diverse/Competent Educational R&D Manpower

Acute

Levien Program Area IV

Problem Description

The small amount and poor quality of previous educational research means that there is not already a sufficient number of well-trained, competent manpower with the diversity of skills that will be needed in an NIE.

Documentation

In the past, the educational researcher was part-time, and worked on fragmentary and small scale efforts; the research productivity of most educators was miniscule; most researchers had backgrounds in psychology or educational psychology. (Clark & Hopkins, A Rpt on Ednl RD&D Manpower, 1969).

"The flow of researchers into the field of education is not nearly sufficient to insure the continued development of new knowledge at the rate required for reasonable progress in education." "Education has generally lost the most productive research years by requiring the achievement of high professional rank before recognition is given to the academic responsibility for scholarly production through released time from regular teaching and service assignments." (Culbertson & Hencley, Ednl Res: New Perspectives), p. 13.

"Efforts to improve skills of current (researchers) who are poorly prepared to carry out research are often frustrated by the faculty's indifference, the lack of time for training in new skills, and the difficulty of altering perspectives acquired through years of professional work and study." p. 61, Sieber and Lazarfield.

"Few problems in the advancement of educational research have been discussed with greater vigor and consensus than the scarcity of qualified researchers." p. 251, Siber and Lazarfield.

"One of the particularly critical problems for the educational R&D manager is identifying, recruiting, and, if necessary, training the supplies of manpower required...educational research and development programs require trained scientific and technical manpower...the range of competencies required may be considerable, not only for scientists from a broad range of disciplines, but also for support personnel in the form of technicians, dissemination specialists, and the full range of skills required for educational development." (p. 136, Hendrik Gideonse, Ednl R&D In the U.S.)

Analysis

"A perusal of the literature on development of research personnel in schools of education indicates three major problem areas: (1) the recruitment of talent, (2) the research climate of the school, and (3) the provisions which are made for training researchers." p. 261 Sieber and Lazarfield.

"Training of educational researchers should include (1) instruction in the established doctrines, (2) analysis of outstanding pieces of research,

Problem Worksheet A-6

Inadequate Supply of Diverse/Competent Educational R&D Manpower (Cont.)

Analysis (cont.)

(3) clinical experience, (4) field observation, and (5) research reporting." p. 348, same.

The R&D training potential of all proposed research programs should be thoroughly investigated.

Goals

- To recruit and train an adequate supply of competent R&D manpower, through both schools of education and ongoing educational research projects.
- To foster research on the part of teachers and other staff in the field.
- To explore available manpower and research training potential of related fields.

Problem Worksheet A-7

Development of Multi-Agency Approaches to Education-Related Problems

Acute

Suggested Program Area V

Problem Description

Many problems are systemic in nature, hence require the multi-agency coordination, at the state, federal and local levels and both public and private.

Documentation

The jurisdictional lines that will probably be drawn between NIE and USOE regarding the conduct of R&D as opposed to dissemination and evaluation are such as to create a severe interface problem that will limit the effectiveness of both (O. W. Markley, "Present Opportunities for Federally Sponsored Educational R&D" SRI/EPRC research memorandum in draft).

Analysis of the compensatory education approach to education for the disadvantaged leads to the conclusion the unequal educational achievement by race or class is more the result of societal circumstances than of educational experiences, per se, and that it is unrealistic to expect that the educational system, acting alone can solve this problem (J. S. Coleman, Equality of Educational Opportunity, OE-38001, 1966.)

Analysis

The NIE-USOE interface problem and the problem of providing better life chances for disadvantaged populations are but two examples of problem areas which call for a higher order of inter-agency or multi-agency coordination than is usually the case. Another example is integrated community services. A vast number of societal problems are education-related although education as an institution can often do little independently.

As this is a difficult and complex area, of the highest importance to society, it is recommended that this area be considered as a separate Program Area in addition to the four that Levien's Preliminary Study designated. (Time constraints of the present study preclude adequate documentation and analysis of all or even most of the relevant considerations involved.)

Goals

- To improve the state of the art and to develop a strong tradition of multi-agency approaches to education-related problems.
- To develop, if feasible, the Development of Multi-Agency approaches as a major Program Area for NIE.

Problem Worksheet A-8

Erosion of Commitment to Scholarly Inquiry

Acute

Suggested Program Area VI

Problem Description

There appears to some observers a dangerous lack of commitment to (or actual revolt against) the values or reason, scholarship,understanding and mastery which become especially critical in a time of national crisis.

Documentation

"Young people today are showing a potentially dangerous lack of commitment to the traditional values of scholarship, understanding, mastery, and performance in areas of business, science, medicine, technology, etc. (Davis, p.3)

In the fall 1968 issue of The Public Interest, Seymour Lipset referred to the "heightened resentment among humanistically inclined, 'general' intellectuals toward the increased emphasis on intellectual technology and expertise... These trends have contributed to the rise among many intellectuals and students...of a backlash opposition to systematic and quantitative social science, to large-scale social research, to the very conception of the utility of efforts at value-free objective scholarship in policy-relevant fields." (pp. 41-2)

Analysis

This revolt against reason has been noted by a number of observers, however there has been little empirical evidence. Whenever established ways of doing things are challenged, the first charge leveled is lack of reason or unreasonableness; and we live in a time when much is being challenged.

Another issue is related to this, but is more concerned with the future needs for a broad range of competent societal analysis. The fear is expressed by Don Michael that a growing number of people will opt out of the rigorous training required.

In some sense, the revolt against reason could be justified as a long overdue reaction to the simplistic rationality of most graduate school research methodology courses, or to the oversold promise of computer rationality or systems analysis.

Goals

- To increase emphasis on critical thinking in college and especially graduate school aimed, not so much at vigorous scientism but at critical reasoning and the development of conclusions about how to procede in the face of relative ignorance.
- To increase emphasis on the rigorous study of real-world issues apparent relevance to students.

Problem Worksheet Ad-1

Critical Societal Problems and Needs of the Future

Adaptive

Levien Program Area I, III

Problem Description

A number of societal problems are anticipated in various plausible alternative futures that education (and educational R&D) will be called upon to solve. These need to be articulated and analyzed so that anticipatory strategies can be developed, thus avoiding fragmentary and less effective "fire-fighting" of crises. Critical problems of the future that have been identified include: unregulated growth of resource-depleting industry; expanding have-have not gap, both between nations and within this nation, with regard to both physical resources and knowledge; a high and accelerating rate of change in society, possibly leading to a loss of cultural integrity and "future shcok;" increasing divisions within society and eroding legitimacy of social institutions among groups whose rights and needs are not adequately served; and finally, the lack of a sufficiently attractive, practical vision of how society can operate to solve these problems, and ensure national unity by enlisting the loyalty of divergent groups in society.

Documentation

A variety of books and articles deal with these topics, many of which are cited and/or discussed by:

Harman, W. W., "The Nature of our Changing Society: Implications for Schools.", Eugene, Oregon: ERIC-Clearinghouse on Educational Administration, 1969.

Marien, M., "Essential Reading for the Future of Education: A Selected and Critically Annotated Bibliography." Syracuse, N.Y.: Syracuse University Research Corporation, 1970.

Markley, O. W., et. al., "Contemporary Societal Problems," Menlo Park, Calif.: Stanford Research Institute, 1971.

Analysis

Although the art of "futures research" and its application to concrete program planning is still in its infancy, and although a wide variety of contradictory conclusions have been drawn by different futurists, this area of research is clearly of crucial importance to NIE program planning and evaluation. Based on the experiences of the Educational Policy Research Centers, the following conclusion seems warranted: If "futures research" is to be of maximum usefulness to NIE, it needs to be focused on two different tasks: (1) analysis of broadly conceived issues relating to society and the planet as a whole; and (2) analysis of more narrowly conceived issues relating NIE concerns, per se, to the broader issues.

Goals

- To increase the quality of research related to the identification and analysis of critical societal problems and needs of the future.

Problem Worksheet Ad-1

Critical Societal Problems and Needs of the Future (Cont.)

Goals (cont.)

- To improve the state of the art in translating anticipated societal problems and needs into program planning and evaluation
- To make educational R&D and educational practice more responsible to future societal problems

Problem Worksheet Ad-2

Educational Policy Implications of "Radical" Discoveries

Adaptive

Levien Program Area IV

Problem Description

An expected result of the continuing "knowledge revolution" is the production of new discoveries which, if applied, would have large, perhaps radical effects on the public education system. Current examples of such discoveries include the heritability of intelligence, effects of interpersonal expectations (as of teachers for students), and so forth.

Documentation

(see below)

Analysis

Ample documentation typically exists describing new discoveries and the controversies that question their validity (as with, for example, Jensen's heritability contentions and Rosenthal's findings concerning teacher expectancy in the classroom). We have not yet, however, developed a tradition of systematically assessing the larger policy implications of new discoveries while there is yet time to choose among the most favorable alternative policy responses. Such a tradition is needed, and it needs to incorporate the principles of "moral inquiry" (see problem III D).

Goals

- To develop mechanisms and more adequate methods for systematically examining educational policy implications of "radical" discoveries.

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Problem Worksheet Ad-3

Assessment and Regulation of Emerging Psycho-Technologies

Adaptive

Levien Program Area IV

Problem Description

A variety of new "psycho-technologies" are being discovered and developed that are perceived to be both very promising as aids to learning and very threatening to human freedoms. These include operant conditioning, psychoactive drugs, cerebral electro-implantation techniques, as well as other techniques.

Documentation

The literature in this area is very inadequate. Delgado, Jose, (Physical Control of the Mind: Toward a Psychocivilized Society, Harper Row New York, 1969) has analyzed some of the public policy implications of the new psycho-technologies.

The issue has attracted Congressional concern, most notably from Cornelius Gallager who has spoken strongly for the need to protect the public welfare in these new areas.

Analysis

The state of the art of technology assessment is still in its infancy: predominantly oriented to assessment of effects on the physical ecosystem, not yet having come to grips with the problems of effective regulation. Thus the whole area of psycho-technology assessment and regulation remains an almost untouched immediate importance to education and to society.

Issues that need to be explored include: (a) whether basic research should be controlled (other than by not giving public support for some areas of inquiry); (b) the development of standards for psycho-technology assessment; (c) viable mechanisms for ensuring knowledgeable public participation in the assessment and regulation of psycho-technological application in education; and (d) viable mechanisms for regulation involving more than assessment.

Goals

- To develop the state of the art in psycho-technology assessment and regulation, especially as it related to education
- To foster knowledgeable public participation in the process of psycho-technology assessment and regulation.

Problem Worksheet Ad-4

Metaproblems Having Educational Implications

Adaptive

Levien Program Area III

Problem Description

A variety of metaproblems (such as "what is the nature of man", "what is the purpose of education", "is the concept of freedom an illusory one") seem always to have been with us, but with the emergence of new and powerful technologies take on a new significance for education and for society. Someone must decide whether these technologies should be applied to public education or not (see also problem #IV H.).

Documentation

It has been well documented that the enduring meta-problems relating to our existence have been answered in very different ways in each of the several major eras in the history of civilization (see, e.g., Boulding, K. E., "The Meaning of the Twentieth Century" New York: Harper & Row, 1964; L. Mumford, "The Transformations of Man," New York: Harper & Bros., 1956)--ways that directly affect how such societal functions as education are performed. As there is a strong possibility that still another major cultural transformation may currently be under way (same references as well as W. W. Harman, "The New Copernican Revolution," Stanford Today, Winter 1969), a critical examination of metaproblems in a transitional society seems appropriate.

Analysis

The analysis of meta-issues relating to ultimate questions such as the purpose of education, the limits of the adaptability and educability and to scholastic nit-picking than to useful insights for educational or other policy making. Nevertheless these kinds of questions seem to have assumed a new importance in our time. As such they seem appropriate to list as educational R&D goals for analysis in Task II of this NIE planning study.

Goals

- To sponsor inquiry on how best to relate meta-issues of society to educational policy considerations.
- To identify contending conceptions regarding the nature of man and society in the present and the future.
- To identify conceptions regarding the nature of man and society that have promise as ways to help unify society in a time of transition.

Problem Worksheet Ad-5

The development of "Higher Level" Skills

Adaptive | Levien Program Area II

Problem Description

If an increasing "standard of living" is to be transcended by an increasing "quality of life" in society, more adequate development of higher level skills seems a necessary education goal. Higher level skills are those which enable citizens to establish a sense of community in spite of a high rate of mobility; to meaningfully integrate diverse information inputs and to perceive complex situations in holistic terms in spite of information overload; to communicate effectively with persons outside of one's own disciplinary speciality or with those who hold differing basic values or ideologies; and to quickly establish a sense of trust or effective relationships with others in temporary work groups.

Only if these kinds of skills are developed can we expect the society to avoid the kinds of pathologies that have been labeled "future shock" (Toffler).

Documentation

Although the need for better teaching of such "higher level" skills has been clearly established by the analysis of the SRI/EPRC (see, e.g., W. W. Harman, "Alternative Futures and Educational Policy"), the literature describing what has been done in this area is very complex and diverse. A literature search of this area was therefore put off until Task II.

Analysis

The teaching of "higher level" skills as part of the public school curriculum is sure to generate conflict, due to the fact that many such skills can be seen as political in nature ('education as a form of political activism'), and that the teaching of socio-emotional skills raises issues of basic values usually kept safely implicit (witness the conflict surrounding sensitivity training in the schools).

Thus this area has a higher degree of political sensitivity than most issues that NIE might address, and will have to be approached with that in mind.

Goals

- To identify the kinds of "higher level" skills with which citizens can avoid "future shock".
- To discover effective ways in which such skills can be learned.
- To establish appropriate ways for public education to teach politically sensitive concepts and skills.

Problem Worksheet Ad-6

Flexible Problem Solving Skills in Real-World Situations

Adaptive Levien Program Area I

Problem Description

If students are to be adequately equipped to deal effectively with the rapidly changing problems and environment of the future, and if society is to enjoy a competent infrastructure, the development of suitable problem solving skills is of crucial importance.

Documentation

Especially salient works are:

Harman, W. W. "Alternative Futures and Educational Policy" Menlo Park, Calif.: Stanford Research Institute, 1970 (dealing with why this concern is of vital importance from a futures perspective).

Michael, D. N., "The Unprepared Society: Planning for a Precarious Future." New York: Basic Books, 1968 (dealing with the importance of focusing on the training of youth elites in flexible problem solving skills).

Coleman, J. C., "The Children have outgrown the schools." Psychology Today, Feb. 1972 (dealing with the changing kinds of extra-school experiences and needs that youth of today have; concluding with a rationale for education that provides direct, not vicarious experience, the ability to integrate diverse kinds of information, and to practice problem solving in a variety of meaningful environments).

Analysis

From a variety of perspectives there is a clear-cut need for educational practices that offer direct rather than vicarious, extra-school rather than intra-school, and generalized rather than specialized learning experiences. The history of the progressive education movement indicates that these objectives will be difficult to realize; the experience of various work-study programs indicates that the approach of more or less simply putting the student into the adult world of work as conventionally defined is an unsuitable one for these purposes. Serious study therefore needs to be undertaken, both of the history of the progressive education movement, and of presently feasible approaches which have promise as ways to provide these kinds of educational experiences and skills.

Goals

- To increase the degree to which conventional educational practice can feasibly provide educational experiences which lead to flexible problem solving skills in the real-world and in environments which are unfamiliar.
- To identify the principal variables on which effective flexible, or generalizable problem-solving skills are based, and how they can best be imparted to different types of students.

APPENDIX C

Listing of Issues Selected from Congressional Hearings on "To Establish a National Institute of Education," February-June 1971

Anne Daly and Harry Kincaid

	1. Goals, needs, and problems of education	2. Problems with R&D practice and application	3. Specific program initiatives
I. Address critical problems in education			
II. Advance practice of education as an art, science, and profession			
III. Strengthen scientific and technological foundations on which education rests			
IV. Build a vigorous and effective education R&D system			

Categorization Scheme

Note: Two sets of Hearings were reviewed: 1) *Education Amendments of 1971*, Hearings before the Subcommittee on Education of the Committee on Labor and Public Welfare, U.S. Senate, 91st Congress, First Session, on S. 659, May-June 1971, *Part 5*; and 2) *To Establish a National Institute of Education*, Hearings before the same subcommittee as above, on H.R. 33, H.R. 3606, and Other Related Bills, February-June 1971. Most of the references cited (name and page number following issue) were taken from the latter Hearings, *To Establish an NIE*. Those taken from *Education Amendments of 1971*, are preceded by "Edu. Amd." Many of these issues are mentioned several times in the Hearings; the reference citation in most cases (but not all) will be the *first* mention. Where practical more than one citation is listed.

Goals, Needs and Problems of Education

I. Critical problems in education

1. Equality of educational opportunity; how do you teach the poor (Moynihan, P. 13)
2. How to implement change; how to get new ideas into the classroom (Gallagher, p. 35 & 39; Allen, p. 82 & 85)
3. Need for alternate types of education (Allen, p. 85; Levien, p. 219)
4. "We have much to learn about human needs and the capacity of ourinstitutions of learning to help their individuals meet those needs" (Marland, p. 497)
5. Greater emphasis and resources into preschool years (Moynihan, p. 17 & 27; Bailey, p. 59; Levien, p. 217 & 218)
6. Standards and techniques for evaluating the comparative effectiveness of innovational programmatic evaluation (Allen, p. 79 & 80; Gideonse, p. 230 & 232)
7. Gap between knowledge and action, research and practice; translation of research into programs (Gallagher, p. 36; Allen, p. 80 & 81)
8. Deepen understanding of behavioral and social phenomena; study attitudes; need for clinical observation (Moynihan, p. 16; Bailey, p. 58; Allen, p. 80; Marland, p. 111; Howe, p. 146)
9. Problem of drop-outs (Edu. Adm. Richardson, pp. 2179-2188)
10. Problems of confrontation and violence (Edu. Adm. Levien, pp. 2351-2362)
11. Need for improved measurement; validity of tests (Meeds, p. 19; Allen, p. 83)
12. Accountability (Moynihan, p. 17 & 25; Allen, p. 83)
13. Financial crisis (Edu. Adm. Levien, pp. 2351-2362)
14. Nutrition (Moynihan, p. 17; Keppel, p. 171)
15. Students leave school with no skills (Edu. Adm. Richardson, pp. 2179-2188)

II. Advancing the practice of education as art, science, profession

1. Teach kids to be critical thinkers; schools stifle creativity and curiosity; teach kids to cope with change (Allen, p. 89)
2. Give more autonomy to students; capitalize on research possibilities thus opened up (Allen, p. 79)

3. Schools are joyless (Edu. Amd. Levien, pp. 2351-2362)

4. New energy imposed on the questions of values and pluralism of our society; essential we retain pluralism (Bailey, p. 61)

5. A variety of points of view should be represented in the school; curriculum should encompass all that is legal and sanctioned in society in its full diversity, religious, political, moral (Bailey, p. 61)

6. More emphasis on man's relation to man; study possibilities in sensitivity training (Allen, p. 79 & 89)

7. Experimentation in structure and timing (Levien, p. 222-223)

8. Link together levels of education (elementary, secondary, higher) (Allen, p. 86)

9. Learn more about adolescence (Moynihan, p. 23)

10. Renewal education for older people (Edu. Amd. Richardson, pp. 2179-88)

11. Improved management techniques (Edu. Amd. Levien, pp. 2351-2362)

12. Decrease existing costs of education by economies of scale (Bailey, p. 57)

13. Strengthen teacher's ability to do job more effectively; "take a hard look at common assumptions and hallowed traditions in profession of teaching" (Gallagher, p. 45; Allen, p. 79; Marland, p. 111)

14. Incentives for teachers to implement innovations (Levien, p. 220)

15. Relieve teachers of administrative duties (Levien, p. 214)

16. Study relationship between teacher behaviors and learning in students; relationships between teachers' attitudes, personality characteristics, and behavior (Allen, p. 79)

17. Study correlation between teacher education and student learning; between certification and student learning (Allen, p. 83)

18. Study correlation between hours of instruction and student learning; between school and student learning (Allen, p. 83)

19. "The marketplace of educational ideas is a blizzard of false claims and phony evidence;" inventions, innovations should be field tested in real American schools, communities (Dentler, p. 183)

20. Study local processes of curriculum development (Marland, p. 111)

21. Increased interaction between school and community (Allen, p. 86)

22. More research in field of work-study opportunities (Bailey, p. 58)

23. Commit more resources, material and human, to risk; reward risk more than we do (Allen, p. 82)

24. Incompatability of educational technology (Ottinger, p. 66)

III. Strengthen scientific and technological foundations on which education rests

1. Do not know about the learning process and the neurological and physiological conditions of learning (Bailey, p. 54)
2. Effects of media, nutrition, drugs, family background, and environments on learning (Bailey, p. 51)
3. Biochemistry of memory (Edu. Adm. Levien, pp. 2351-2362)
4. Process of language acquisition (Edu. Adm. Levien, pp. 2351-2362)
5. Research in reading and mathematical skills and social studies (Bailey, p. 58)
6. Research into socialization (Bailey, p. 58)
7. Research into finance and structure of education (Bailey, p. 58)
8. Development of software in educational technology (Levien, pp. 225-226)

IV. Building an effective R&D system

1. Research has dealt with trivial matters, asking small questions with small answers (Levien, p. 193)
2. Scientific base has been too narrow, psychology has provided most of the basic concepts and techniques (Allen, p. 79; Richardson, p. 109; Levien, p. 193)
3. Research should be interdisciplinary (Stockton, p. 172)
4. Governmental amnesia about past priorities; change every 2 or 3 years, often coincident to major changeover of leadership staff; priorities disappear before programs can really get under way (Gallagher, p. 33; Bailey, p. 51; Ottinger, p. 74; Edu. Amd. Levien, pp. 2351-2362)
5. "The level of funding has been impossibly inadequate" (Gallagher, p. 34; Bailey, p. 50)
6. NIE's organization should fully reflect the political dimension of educational R&D as well as its scientific dimension (Gideonse, p. 230)
7. Improve evaluation of policy alternatives (Edu. Amd. Levien, pp. 2351-2362)
8. The decision-making processes of NIE should be more widely opened to the public (Gideonse, p. 231)
9. Attract high quality researchers and scientists (Richardson, p. 109; Edu. Amd. Levien, pp. 2351-2362)

10. Need high level personnel to provide wise leadership for the major program thrusts (Gallagher, p. 32, Bailey, p. 50)
11. Coordinate R&D activities among Federal agencies (Levien, p. 203)
12. Increase funding for Regional Labs; put on a program support basis; should be administered in NIE (Bailey, p. 50; Gallagher, p. 41)
13. Provide decentralization of both the decision-making and conduct of educational R&D (Gideonse, pp. 230 & 232)
14. Establish liaison with universities (owe, p. 146)
15. Real problems of practice should define what R&D needs to be done; turn practitioners into more demanding consumers (Gideonse, pp. 230-231)
16. Train and support school people to organize and conduct R&D divisions in schools (Allen, p. 83)
17. Need for much more widespread participation in the process of research and development; "from participation come both commitment and understanding" (Gideonse, p. 232)
18. Provide a free "always open" consultant research service component for all developmental school programs (Allen, p. 83)
19. Unite "pure" and action research so that they have a mutual relationship; create a "direct and lasting relationship between the school and NIE" (Allen, p. 80 & 83)
20. "Anytime you get a battle of views that have to gain consensus, you get the lowest common denominator; isolate NIE sufficiently from day-to-day responses of people so that we can get some assurance of long-range continuity, get some assurance that diverse programs can be funded, and that we don't create the kind of commission mechanism that reduces everything to the lowest common denominator" (Allen, p. 86)
21. Orient programs and research to the problems of society (Allen, p. 94)

Problems with R&D practice and application

I. Critical problems in education

1. Chasm between educational innovation and educational implementation; help teacher learn new systems of teaching, which means interaction with trained people and demonstration (Gallagher, p. 35; Allen, p. 80)
2. Match/mismatch between innovation and child's previous experience, subsequent experience, present demands, or school resources (Richardson, p. 108)
3. Research that has been done is consistently ignored in the practices of the schools (Allen, p. 80)
4. Consumers (educators, administrators) should have more voice about research and programs generated (Gallagher, p. 33; Richardson p. 108)
5. "The most detrimental factor (in educational R&D) is the preponderance of university-based, individually done, unrelated and unresolved student and faculty academic work" (Allen, p. 80-81)
6. Need models which will make implementation dependent on on-going research, and research dependent on current innovations (Allen, p. 79)

II. Advancing the practice of education as art, science, profession

1. "We have a growing body of 'humanistic' psychology that has wide implications for education and yet we seem almost afraid to get involved in research on the effects of sensitivity training and our research methodology ill equips us to do so" (Allen, p. 79)
2. Fail to search for intuitive, subjective research methods (Allen, p.79)

III. Strengthen scientific and technological foundations on which education rests

1. We continue to use old statistical models which negate individual differences rather than developing new ones which might teach us something about them; the chasm between social and statistical significance...sits before us waiting to be bridged (Allen, p. 79-80)

IV. Building an effective R&D system (most of these have also been listed under "Goals, needs, and problems of education")

1. Research has dealt with trivial matters, asking small questions with small answers (Levien, p. 193)
2. Scientific base has been too narrow, psychology has provided most of the basic concepts and techniques (Allen, p. 79; Richardson, p. 109; Levien, p. 193)

3. Research should be interdisciplinary (Stockton, p. 172)

4. Governmental amnesia about past priorities; change every 2 or 3 years, often coincident to major changeover of leadership staff; priorities disappear before the programs can really get underway; need for long-term funding (Gallagher, p. 33; Bailey, p. 51; Ottinger, p. 74; Edu. Amd. Levien, pp. 2351-2362)

5. "The level of funding has been impossibly inadequate" (Gallagher, p. 34; Bailey, p. 50)

6. NIE's organization should fully reflect the political dimension of educational R&D as well as its scientific dimension (Gideonse, p. 230)

7. Improve evaluation of policy alternatives (Edu. Amd. Levien, pp. 2351-2362)

8. The decision-making processes of NIE should be more widely opened to the public (Gideonse, p. 231)

9. Attract high quality researchers and scientists (Richardson, p. 109; Edu. Amd. Levien, pp. 2351-2362)

10. Need high level personnel to provide wise leadership for the major program thrusts (Gallagher, p. 32; Bailey, p. 50)

11. Increase funding for Regional Labs; put on a program support basis; should be administered in NIE (Bailey, p. 50)

12. Real problems of practice should define what R&D need to be done; turn practitioners into more demanding consumers (Gideonse, pp. 230-231)

13. Need for much more widespread participation in the process of research and development; "from participation come both commitment and understanding" (Gideonse, p. 232)

14. "Anytime you get a battle of views that have to gain consensus, you get the lowest common denominator; isolate NIE sufficiently from day-to-day responses of people so that we can get some assurance of long-range continuity, get some assurance that diverse programs can be funded, and that we don't create the kind of commission mechanism that reduces everything to the lowest common denominator." (Allen, p. 86)

15. Orient programs and research to the problems of society (Allen, p. 94)

16. Complexity of educational research: We really do not know why Johnny can't read: is it because of his mother's diet during the prenatal period; is it because of inadequate parental play in the early months of life; is it because of "cultural deprivations" in the home--whatever that slippery term means; is it because of the self-fulfilling prophecies of teachers who believed that Johnny was stupid; is it because of poor instruction; is it because of a low self-image reinforced by failure in terms of middle class grading norms; is it because of some ineffable combination of all these factors?
    And today, if a single teacher in a ghetto school is able to demonstrate that she can succeed in spite of all these questions, how can what she has, or what she is, be bottled for shipment to the tens of thousands of other schools in this country? (Bailey, p. 51)

Specific Program Initiatives (Current job titles of those testifying on p. 13)

I. Critical problems in education

1. Education of disadvantaged

a. "What I hope the NIE would do would be to fund the kinds of activities that people in various communities would like to see going on, and not necessarily choose any single one to be the national approach. It would encourage and facilitate the exploration of a variety of alternatives that people have seen as potentially useful, to make available to those communities a variety of ways of approaching their own problems. I think as long as NIE approaches its charter as one of broadening the choice that educational communities can have in solving their problems, and of giving them good information, a lot of the cause of controversy can be avoided."(Levien, p. 207)

b. "The first thing the NIE would do is design a coordinated national program addressing that particular problem. You mentioned a few hypotheses about what causes educational disadvantage--the influence of nutrition and early child care.

I would see this comprehensive national program doing a number of things. First, taking those hypotheses and putting them on firm ground, doing whatever research has to be done to determine whether they are true or how they have to be modified. Second, turning what is known now, or what is well understood into operating programs. The first example is nutritional deficiency. The NIE might support development of some new forms of child care that have a special concern for nutrition and encouraging mental growth in the early years, and so on. Third, disseminating these results, and making them available through demonstration facilities in various localities. Fourth, undertaking new developments in entirely different curricula, experimental schools, and forms of schooling, addressed to the problem of the disadvantaged and interlinked to provide a coordinated approach in which research and development and implementation, all focus on this one problem. The NIE would seek to employ the best people and the best institutions to carry on these programs." (Levien, p. 217)

c. "We may have to move in the next few years to some kind of voucher system...saying to parents, if the existing school system leaves your child behind, then here is a voucher that will enable you to take that child for certain periods of the day and put that child in the hands of specialists in the areas of his deficiency, and I think some kind of movement of that sort may be necessary."(Bailey, p.6

d. "The Southwest Regional Laboratory in Inglewood, California, has put together what they call a first year communication skills program which they have addressed particularly to minority groups in the Los Angeles area. They are taking a problem like the reading problem and breaking it down into modular units, developing kits of teaching materials, ways of learning, ways of training leaders, ways of tutoring tutors, and I think this is a program... that would make a difference. I would commend this program to this committee. ...You can get further information from OE...." (Bailey, p. 60)

2. Communication, dissemination, putting R&D results into practice

a. "...Establish three or four models of communication systems,...put them into place in regions or states where it would be possible to show how you could get the newest ideas and programs into effect at the earliest possible time. I think there are some models that have been developed (the Special Education Instructional Materials Network; Regional Educational Laboratories) that would give guidance along these lines. (Gallagher, p. 43)

b. "Do you believe it is compatible to the national education program to utilize the private sources of communication in a voluntary basis?" Yes.... If you take the concept of a national institute of education and the prestige that such an institute would have, it could bring together the leaders of the communications field and present them with the problems and say: 'Look, here is what we need in order to communicate these ideas more effectively. What can you gentlemen provide for us in the way of advice and plan?' The plan would involve both private and public sectors, I would hope. (Gallagher, p. 44)

c. We want to help that teacher learn new systems of teaching, and that means interaction with trained people. It means demonstration and it means a more intensive effort of training the teacher in the new methods than we have allocated for in the past. (Gallagher, p. 38)

d. The program change, when it takes place, usually occurs because of some personal relationship that has been formed between the seller and the consumer. Unless you have systematic channels of communication involving personal contact, the changes will be difficult to maintain, even if they are started at administrative level. It is hard to find those elements in the new program that are so rewarding that it will overcome fears and anxieties raised by departing the educational status quo. (Gallagher, p. 38)

e. "(NIE) can produce interesting and informative presentations of research findings in multiple forms--movies, videotapes, slide tapes, publications--which can be used by various publics for both training and awareness purposes. It can also catalogue, store, and distribute these materials." (Allen , p.83)

f. "...If the transfer into practice is to occur, we need a much wider two-way highway, in which the problems of practice are fed back into research and development at the same time as what R&D finds is fed forward into practice.

"...See that R&D people are present in all parts of the educational system." (Levien, p. 220)

g. (The Bureau of the Handicapped in OE)"has this special education material center network that was established with about 14 centers throughout the country, and their mandate was to get new ideas into the field as quickly as possible, once they are validated. They have since set up 300 associate centers. These are centers at the local level that take responsibility for the actual delivery to the teacher, whereas the centers themselves provide materials to the associate centers. (Gallagher, p. 43)

II. Advance practice of education as art, science and profession

1. Teaching

a. "...Children get more excited, more involved and consequently do better if they have a share in planning.... We believe this condition is a prerequisite for retaining enthusiasm for teaching in teachers. (Desmond, p. 447)

b. Educators have long recognized that children often learn as much or more from their peers than from their instructors. It is just as valid to apply this principle to the ongoing development of the professional skills of the teachers in the school." (Desmond, p. 447)

c. "...We finally tried another course of action--we presented a demand at the bargaining table to set up model experimental programs that teachers had a hand in designing. Nationally it is referred to as the American Federation of Teachers' 'More Effective Schools Program." In Chicago we call it Project READ. The program design has been a little different in each city. Project READ, now successfully implemented in three schools in Chicago, has three things in common with other More Effective Schools programs.

1) Teachers helped design the program. They weren't handed a design and told that what you have been doing was wrong, this is what you should do.

2) Each program is developmental--it changes as the teachers, in working with each other, the school administrators, the parents and the other professionals on the staff, develop their own perceptions of what their children's needs are, how well the materials match the children's needs and what other kinds of materials or approaches can be used.

3) This development of the teacher's own skills is viewed as an integral part of his professional responsibilities--in the schools within the school day." (Desmond, p. 447

2. Teacher training

   a. "...Start with in-service training for teachers, and reform that process in such a way as to engage the teachers from the very beginning in understanding the role and use of R&D.

   Secondly, it has to be built into the teacher's career.... The schools council model in England is useful. There they have developed a system of teacher centers in many of the local districts. These are the mechanisms by which teachers in that area come together to work on common problems and to cooperate with national curriculum development teams. They come to the centers to develop and test improved methods and curricula. ...I think we have to focus on the teacher and focus on training teachers to engage in the process of reform. (Levien, p. 218-219)

   b. (Inservice teacher training) "...We (U. of Massachusetts) may find a series of school districts that would be willing to embark on a 3-year program with the university. The first year, the university and school district jointly explore ways in which the program would change substantially. The second year the university and school would work jointly to develop the logistic support and ability to implement such programs. And the third year the university sticks around to take some responsibility to implement the program of reform. In the process of that 3-year period study, you could base your inservice teacher education and your preservice teacher education out in the schools. (Allen, p. 93)

3. Experimental schools, programs

   a. (NIE) "...can establish experimental schools in which all participants are aware of the risks and willing to accept the consequences. These schools will have immunity much as the new Disneyland in Florida has been able to gain immunity from state regulations for its own school system. We will systematically set up competitive and alternative educational systems. This can be done in the public schools." (Allen, p. 83)

b. "...Invent mechanisms where a certain percentage of students could be shifted over to experimental programs with an option that every year or two a larger percentage could be added until we gain equilibrium between demands for option and the options which exists." (Allen, p. 92)

c. "I would be in favor of analyzing a free ticket to the to the kind of post-secondary education that uses hundreds and hundreds of different models. It may be at computer operator school or barber college, or plant security guard, or major in Greek and philosophy at Harvard. ...It pays to give every young person a passport to develop their talents to the utmost; and it ought to be paid for by the Federal Government." (Howe, p. 157)

4. School government

a. "...We need experimental models on school government.... It might very well be local school boards as we have known them historically in this country are really inadequate to take over the school governments in the future." (Bakalis p. 430)

III. Strengthen scientific and technological foundations on which education rests

1. "...We ought to reorient the programs or university research so that instead of being exclusively oriented to disciplines, they become oriented to the problems of society. ...That sociologists, anthropologists and psychologists will become members of a national faculty. At the institutional level we should have institutes on man and environment and other problematic problems in society. If that happens, then you have a way to compel scholars to devote major parts of their energies to university based research that has more immediate payoff in society." (Allen, p. 94)

2. Confine the area of research to a fairly limited number of these enterprises. One of the difficulties with Headstart is that we have tried to go out and evaluate all Headstart programs. The are x number of thousands of these, no one of which is alike. You don't get good research out of that. You get good research by saying we are going to do a thousand of these things and we wish them all luck but there will be a few which we are really going to watch, we are going to instrument, we are going to calibrate and we are never going to let go. Concentrate your inquiry on a few and, for the rest, hope for the best. And then learn to recycle your findings among the rest." (Moynihan, p. 17)

3. "There is a level of research in this area which is extraordinarily abstract and important, that is, the kind of molecular biology that led to the discovery of DNA. We are beginning to have a sense of how the brain works, and there are men who really think we are about to get it. They know each other and they just need to be supported." (Moynihan , p. 16)

4. "You do need some fairly sophisticated clinical work, clinical psychology of the kind Brunel is carrying out in Harvard--that is observing child behavior and noting patterns. ...That kind of work needs to be supported." (Moynihan , p. 16-17)

5. (NIE) "...Can review the vast array of non-school inputs to the learning process. It can collect and massage data on the effects and effectiveness of things such as media, nutrition, drugs, family background, and environments on learning." (Allen , p. 83)

6. "You need some just plain very good cost accounting of the actual operation of educational experiments. We change this input. What happens to the output? You just observe the actual experience of the day care center, or whatever the facility is. I would like to analyze it by the methods of regression analysis, and so forth, which we are pretty good at." (Moynihan , p. 17)

7. (NIE) ..."can concentrate on a particular student's growth over several years, or a particular teacher's performance with a particular situation. Most research now focuses on the ideal state--finding the best model, the best curriculum, the best training. An effort must be made to produce more situational specifications." (Allen , p. 83)

IV. Building an effective R&D system (Most of these have also been listed under "Goals, Needs, and Problems of Education")

1. "...Adopt for educational R&D some of the multi-year and no-year funding arrangements that have proved so successful in the budgets of AEC, NASA, and DOD. Congressional support should be assured over a long period of time." (Bailey, p. 51) (The need for long-term funding was mentioned many times in the testimony.)

   (NIE)"can provide a sustained and permanent research base which will generate longitudinal and replicable studies." (Allen , p. 83)

2. (Educational research) "is scattered around and 'bootlegged' in a dozen places (in Federal government).... I would bring it together and put it under the charge of a man who will have a coherent strategy." (Moynihan, p. 29)

   "Coordinate R&D activities among Federal agencies..." (Levien , p. 203)

   "...Try to rationalize and bring greater cohesion to what is going on in universities and in R&D centers..." (Bailey, p. 59)

3. "...Transfer the administration of the educational labs and the programs that they are funding to NIE.... Put the labs and R&D centers under a program support basis. If they can develop in those labs or R&D centers major programs that are worthy of support, let's support them. But let's not support them merely as institutions." (Gallagher, p. 41)

4. (NIE) "...should balance the scholarly, independent 'pure' research efforts in universities with action research programs in schools." (Allen, p. 83)

   "A direct and lasting relationship between the school and... NIE will make a significant contribution..." (Allen, p. 80)

5. Train and support school people to organize and conduct R&D divisions in schools (Allen, p. 83)

6. "...Provide a free 'always open' consultant research service component for all developmental school programs. The creativity of program designers in schools will be balanced by the supportive educational data generated and situationalized by the Institute. (Allen, p. 83)

7. "...Do for this field what was so magnificently successful in the moon shot which is to identify goals and then to pull together talent from a dozen or a hundred different professions and focus that talent upon specific problems." (Bailey, p. 60)

Allen, Dr. Dwight: Dean of Education, University of Massachusetts

Bailey, Stephen K.: Chairman, Policy Institute, Syracuse University Research Corp.

Bakalis, Dr. Michael: Superintendent of Public Instruction for Illinois

Desmond, John E.: President, Chicago Teachers Union

Gallagher, Dr. James: Director, Frank Porter Graham Child Development Center, University of North Carolina (For three years in OE first as Associate Commissioner of Education in charge of the programs for the Handicapped and then as Deputy Assistant Secretary in charge of Planning Research and Evaluation)

Howe, Harold,II: Vice President, Ford Foundation, Division of Educational Research

Levien, Roger E.: Study Director, Rand Corp., NIE Planning Study

Moynihan, Daniel P., Professor of Education and Urban Politics, Harvard University

(Gideonse, Hendrik D.: Former Director, Program Planning and Evaluation, National Center for Educational Research and Development Office of Education; currently, Dean, College of Education, University of Cincinnati; testimony incorporated into earlier EPRC analysis, hence not included here.)

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FUTURE-ORIENTED PROGRAM ALTERNATIVES FOR THE NATIONAL INSTITUTE OF EDUCATION

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SRI Project 6747

EXECUTIVE SUMMARY

This report presents the results of a five-week effort to develop a series of program alternatives for consideration by NIE that correspond to selected program goals developed and presented in an earlier report.*

The program alternatives were developed to complement rather than duplicate other NIE planning efforts, and draw heavily on the following conclusions that have emerged from on-going future-oriented work of the EPRC: (1) continually deepening and accelerating changes in society may be expected, and approaches are needed which will (a) decentralize the conduct of educational R&D to the extent feasible, in order to foster the development of a more competent problem-solving infrastructure throughout society , and (b) educate for flexibility, a high degree of tolerance of differences, and the ability to cope with varied cultural norms; (2) the anticipation of "adaptive" problems which have not yet become acute is a necessary part of R&D planning, given the long rise-time required before R&D products become mature; (3) many of the most critical problems of education and society are systemic in nature, hence may well be intractable by conventional piecemeal or centralized "top-down" approaches involving only one sector of society; and (4) coordinated public-private and multi-agency approaches are therefore likely to be increasingly necessary.

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* "A Needs Assessment for Educational R&D," by the present authors.

As requested, we focused our present efforts on the development of research programs in four areas of concern: (1) the societal context of education; (2) increasing the effectiveness of the educational R&D system; (3) multi-organizational coordination; and (4) anticipatory identification of education-related problems.

The first three areas of concern are each developed in a separate section of the report. Anticipatory identification of education-related problems, however, is treated in the section on Societal Context Research, where both examples of past research and suggested topics for future research are provided.

A short description of each of the program alternatives is presented in the introduction.

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I INTRODUCTION

Scope of Work

The NIE Planning Unit invited the SRI/EPRC and several other policy research organizations to assist with the development of program initiatives that NIE might support. Each group was told not to seek comprehensiveness, but rather to translate the most important insights that resulted from their work to date into a form that would be most useful to the NIE Planning Unit. The analytical approach to be used was set forth in a memorandum "Specifications for NIE Planning Contracts," in which four task elements were defined: (1) the development of an ordered goal structure, identifying target groups affected by the achievement of these goals; (2) a description of the state-of-the-art relating to manipulable variables through which these goals might be achieved; (3) the specification of program alternatives for NIE that are responsive to conclusions reached in the first and second task elements; and (4) the development of a funding strategy and support priorities to help guide the selection of program initiatives.

Our first submission to the Planning Unit, "A Needs Assessment for Educational R&D," responded to the requirements of the first of these tasks. The present paper is responsive to the remaining tasks. Its central objective is to develop a structured set of program alternatives that: (1) are based to a great extent on the conclusions we have drawn from our on-going future-oriented program of educational policy research; (2) respond to the specific requests made by the Planning Unit as a result of our earlier submission; and (3) fill in gaps not covered by other NIE planning documents.* We have tried, insofar as possible, to compliment--rather than duplicate--the results of others' efforts.

As requested, we have focused our present efforts on the development of research program alternatives in four areas of concern: (1) the societal context of education; (2) increasing the effectiveness of the educational R&D system; (3) multi-organizational coordination; and (4) anticipatory identification of education-related problems. For reasons of clarity in exposition, we chose to combine the first and the fourth areas. Hence both methods and exemplary results of research to anticipate critical future problems are presented as part of the research programs on the societal context of education.

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*The primary documents that were used toward this end are: R. Levien, National Institute of Education: Preliminary Plan for the Proposed Institute;" "Program Planning Notes from the Interim Report of the NIE Planning Unit;" NIE Planning Unit, "Report on Organization and Management: An Interim Organization;" J. Howell, P. Wilson, and B. Sprunger, "NIE--Coordination with Other Federal Agencies;" and J. Wirt, A. Lieberman, and L. Spencer, "Organizing for Innovation: Alternative Designs for the American Educational R&D System."

Conclusions Based on Holistic Analyses of Society

Although both the assigned mission and most of the past work of the SRI/EPRC were largely concerned with the future, alternative futures can be seen in perspective only if the past and present are considered as well. Several of the following conclusions stem from this expanded perspective. They are unprovable by conventional scientific procedures, but are nevertheless useful premises for anticipatory planning.

- Many of the education-related problems facing our society are systemic in nature--they have determinant roots in non-educational sectors of society, and "single-sector" attempts at resolutions are not successful (e.g., education of the disadvantaged and "career education").

- The society is undergoing an increasingly accelerated rate of change and is becoming increasingly "close-coupled" (where a change in one sector quickly and strongly impacts on other sectors, often in unanticipated ways). Thus, adaptive problems are of increasing concern.

- Viewed in a macro-historical sense, the present era (dating from the industrial revolution until, perhaps, the early part of the 21st century) must be viewed as a unique era. It is a period in which man is living off a legacy of virtually non-replenishable minerals and fossil fuels. It was preceded by millenia during which man's consumption from the ecological reservior was small and his impact on the non-human environment minor. It must be followed by a period of indefinite duration in which human activity fits into some new set of ecological relationships, partially of man's devising, but likely antithetical to many of the basic values on which Western institutions are based.

- The rate of change will thus continue, but will likely extend to changing the values and basic premises of the culture.

- The needed changes cannot come from, and are unlikely to be controlled by, top-down management unless authoritarian methods are resorted to.

- Given the uncertainties of the future, we need to cherish the different standards and life styles of sub-cultures--they may be needed as models.

- Thus, education that is to be responsive to the predominant characteristics of the likely future must emphasize the development of a high degree of tolerance, flexibility, and an ability to cope with varied cultural norms. This implies an emphasis on the ability to gain new skills over the attainment of any particular skill; on having access to knowledge and skills to integrate new knowledge over having memorized any particular knowledge; on the development of self reliance over dependence on experts.

- Thus, also, educational R&D should be as decentralized as is feasible, to contribute to the development of a competent problem-solving infrastructure in society.

Program Alternatives for NIE

The research program alternatives noted below and developed in the remainder of the paper are meant to be responsive to the premises listed above, although their desirability is not solely dependent on the validity of these premises.

Societal Context Research

(1) Holistic Analysis of Society: inquiry into the broad alternative prospects that are plausible for society, and identification of broad strategies that seem desirable.

(2) Trend and Event Analysis: in-depth inquiry into key trends and events having particular relevance to the planning of anticipatory R&D, and to issues of public interest.

(3) Anticipatory Needs Assessment: articulation of education-related needs that are responsive to plausible future conditions in society.

(4) Policy Implications: assessment of present or proposed policies in terms of plausible societal consequences.

(5) Integration/ Translation: repackaging results from the above studies for improved dissemination and utilization.

(6) Dissemination: active dissemination to targeted audiences.

(7) Support of Unsolicited Proposals.

Four NIE management alternatives are posed as options with which to structure programs of research on the societal context of education.

Increasing the Effectiveness of the Educational R&D System

(1) A Decentralized Market Mechanism: a series of program elements to foster the emergence of competitive offerings by both public and private sectors which state and local educational agencies can "purchase" as educational R&D services (as distinguished from products).

(2) Programs to Increase Local Incentives to Innovate: a series of programs that would seek to increase the awareness of the need for educational renewal, and the skills to initiate such activity.

  (a) Change-Agent Training: special training programs--either in anticipation of, or simultaneous with formal programs of educational renewal--especially targeted for school principals and selected teachers. Such training might also become part of university-based teacher training curricula.

  (b) Social Marketing Approaches:Federal exploration of social marketing as a means to increase the effectiveness of dissemination and to increase the status of innovative teaching in "problem schools."

  (c) Voluntary Sector Approaches: Research to promote the state-of-the-art of voluntary organizational participation in the policy process in education, especially at the local level.

Research on Multi-Organizational Coordination

(1) State-of-the-Art Assessment and Analysis: a one-shot study to summarize and interpret the literature and personal knowledge of persons with relevant multi-organizational experience.

(2) A Research Advisory Committee on Multi-organizational Coordination: a standing panel of experts on the state-of-the-art of multi-organizational research and operations (between Federal agencies, between Federal, state, and local levels of government, and between the public and private sectors).

(3) A Research , Development, and Training Center for Multi-Organizational Concerns: institutional support for a university-associated but independent Center to conduct conclusion-oriented and decision-oriented research on problems of multi-organizational coordination, and to manage training fellowship and field internship programs.

II RESEARCH ON THE SOCIETAL CONTEXT OF EDUCATION

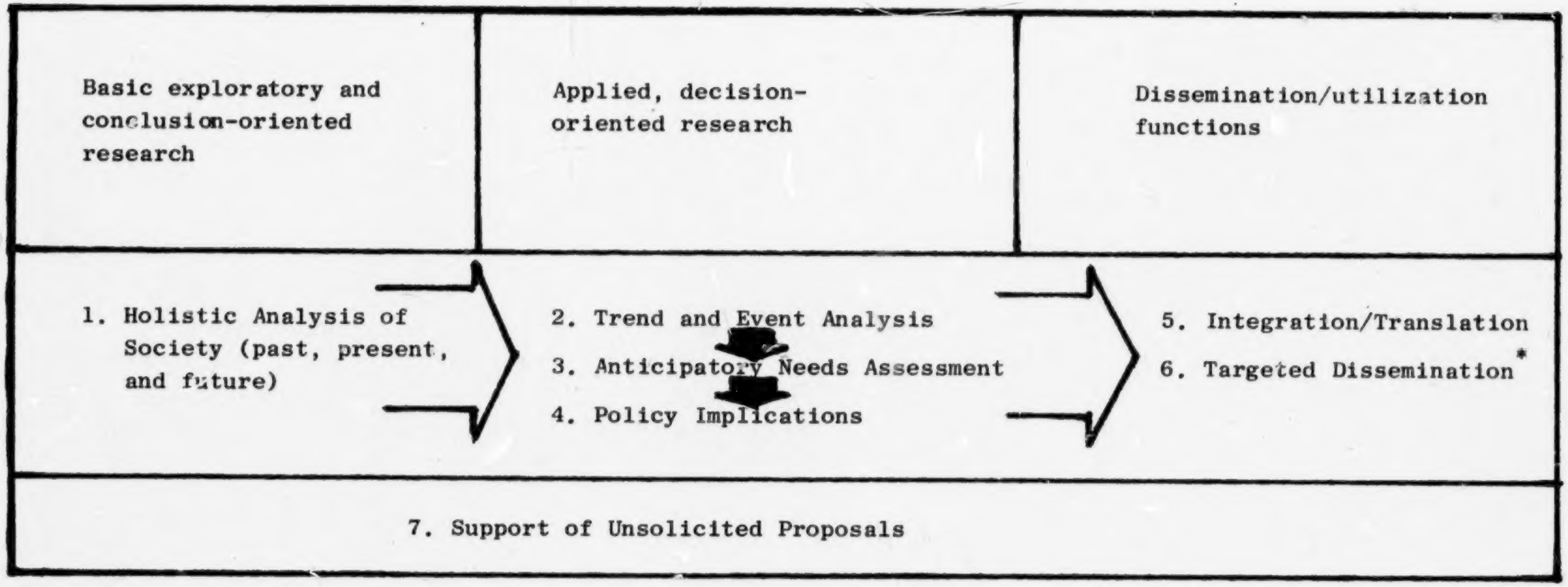
If education is to adequately serve the needs of the larger society, the broader societal context must be considered in educational planning and policy analysis. Two fundamental questions underlie this type of inquiry: (1) what are the characteristics of the evolving society in which education must exist? and (2) how can education be employed to prepare citizens for the evolving future? Such a future-oriented perspective is essential to NIE if it is to anticipate problems that have not yet become acute, and hence be able to mount R&D efforts that will produce the needed results before crisis-oriented programs become necessary.

Although research oriented to the answering of the above two questions has begun, it is supported at a relatively low level; it suffers from an immature state-of-the-art; it is primarily directed toward the analysis of immediate rather than anticipated concerns; and its conclusions are not adequately incorporated into the policy-making process.

The experience of the two Educational Policy Research Centers supported by USOE indicates that it is useful to partition the different types of societal context research into conclusion-oriented, decision-oriented, and translation/dissemination efforts. The broader conclusion-oriented research produces information useful in the conduct of more applied studies, but is not generally responsive to the operating needs of agency people except insofar as it suggests future issues that are likely to become troublesome, hence targets for immediate research. Even the results of more applied, decision-oriented policy research, although relevant to policy makers, are not typically utilized unless either (1) the producers of such research participate in intramural staff studies; or (2) the products of such research are translated and disseminated intramurally where they can be used.

The partitioning of efforts shown by Figure 1 reflects these conclusions. The program elements listed are:

(1) Holistic Analysis of Society--using the term holistic in both a disciplinary and a temporal sense, research conducted in this area would inquire into the broad alternative prospects that are plausible for society, their relationship to the past and the present, and the broad strategies which might feasibly obtain a "desirable" future for society.


Basic exploratory and conclusion-oriented research
Applied, decision-oriented research
Dissemination/utilization functions
1. Holistic Analysis of Society (past, present, and future)
2. Trend and Event Analysis
3. Anticipatory Needs Assessment
4. Policy Implications
5. Integration/Translation
6. Targeted Dissemination*
7. Support of Unsolicited Proposals

* Conventional dissemination is assumed for elements 1-4 and 7.

Figure 1

PROGRAM ELEMENTS FOR SOCIETAL CONTEXT RESEARCH

(2) Trend and Event Analysis--based on the more holistic studies, this type of analysis would identify and explore in depth key trends and anticipated events in society that have particular relevance to the planning of anticipatory R&D, and to issues of public concern.

(3) Anticipatory Needs Assessment--such assessments would derive and articulate education-related needs that are responsive to key societal trends and events.

(4) Policy Implications--assessments of the plausible consequences of following present or proposed policies; be developed in terms of anticipated societal problems, needs, pressures, and changes.

(5) Integration/Translation--the results of the conclusions from the above types of research would be repackaged into forms that could be most effectively utilized by different target groups (both personnel involved in the planning of education-related programs and various public audiences).

(6) Targeted Dissemination--the repackaged conclusions would be actively disseminated as part of other on-going dissemination programs sponsored by NIE.

(7) Support of Unsolicited Proposals--NIE's support program for unsolicited research would include research on the societal context of education.

Each of these program elements is described below, with illustrative examples of results and needed areas of research listed for problem elements 1 -- 4.

Description of Program Elements

Holistic Analysis of Society

Efforts in this area would focus on investigating the present condition of society and its likely (plausible)futures, seeking to gain increased understanding of the broad forces, trends, and events that are shaping the course of society. Attention would be given to the identification of particular trends and likely events that have obvious implications for education, but which are not yet generally recognized or considered within the educational community. Of especial importance is the consideration of future trend-breaking that would lead to radical transformations of the education system.

Given the relatively long rise time that is required before a "critical mass" can be established for this type of study, it should be given long term institutional support.

Techniques

A variety of methodologies have been developed to gain a holistic understanding of the dynamic state of society. The more piece-meal methods have been described in Erich Jantsch's Technological Forecasting in Perspective, including: contextual mapping, historical analogy, structural constraint analysis, and consensus of expert opinion (including such methods as the Delphi Technique). The more comprehensive methods are of greater relevance to this research area and include: scenario writing to synopsis (as at the Hudson Institute), computer-based system dynamics simulations (as at MIT) and the morphological "Field Anomaly Relaxation Method" (as at the SRI/EPRC).

Although opinions differ on this topic, it is likely that NIE's concerns in this area would be best served by not devoting a high level of funding to the development of highly sophisticated methodologies in this area, but instead by supporting highly competent critical analysis and integration of knowledge as it becomes available.

Examples of Results

Examples of the kinds of conclusions that stem from this type of research are provided in detail in such works as Herman Kahn and Anthony Weiner's The Year 2000, and in the SRI/EPRC Research Memorandum "Alternative Futures and Educational Policy." Examples of likely future trend-breaking or other radical changes in society include: (1) enforced social policies severely limiting continued growth in the consumption of non-renewable physical resources; and (2) a radical modification of the economic system, with attendent changes in the distribution of resources among people and in the conception of "work" (and therefore in the conception of "welfare" as well).

Topics for Future Research

Suggested topics for research based on present results of holistic societal analysis include:

(1) Ways that schooling might better utilize the educational resources of the society.

(2) International education. The increase of communications, transportation, ecological concerns (use of resources), etc., all combine to make the world "smaller" and more interdependent. ER&D should take into account concerns of international education, and should develop mechanisms to facilitate the use of international resources for education and the development of education to cope with international situations.

(3) Societal problem-solving by the voluntary sector. Many of the problems of our society could be more easily or efficiently dealt with by voluntary action on the part of portions of the populace. ER&D should develop mechanisms for enabling voluntary-sector efforts to be useful, as well as developing curricula and instructional processes to equip students to engage in voluntary efforts to resolve the problems of society.

(4) Conflicting paradigms and basic premises about the nature of man. The emergence of effective psycho-technologies has brought into question some basic issues about the socialization of man. ER&D should monitor and seek to synthesize the conflict between paradigms, and assess implications for education.

Developed Sources of Expertise

The capability to conduct this type of research exists within the two Educational Policy Research Centers sponsored by USOE, as well as within other institutions such as the Rand Corporation, the Hudson Institute and the Center for Integrative Studies at SUNY/Binghampton. A need exists for the development of similar expertise at centers that explicitly adopt the perspective of minority groups in the U.S.

Trend and Event Analysis

This research activity would focus on various trends, anticipated events, and their interrelationships which are relevant, either directly or indirectly, to educational concerns. The primary orientation would be the identification of key issues to consider in educational R&D policy (as in the needs assessment discussed below); secondarily, such analysis would shape the more holistic studies discussed above. Thus it is desirable to have at least a part of this kind of research conducted by the same centers that perform the holistic studies of society. As at least one of the available techniques for trend and event identification (the

Delphi) does not depend on the pre-existence of the kinds of expertise that the previous program element develops, an option is to contract out this program element by itself, independently of the other closely connected research elements (1, 3, and 4).

Techniques

The art of trend and event identification and analysis is considerably older than of the more holistic approaches. Available techniques (also described by Jantsch) include trend extrapolation, both numerical and phenomonological; cyclic analysis; trend correlation; and the Delphi Technique.

In spite of earlier beginnings of this kind of research, the state-of-the-art is in particular need of improvement--expecially the techniques of developing and using social indicators to provide a better empirical basis on which to evaluate societal trends. For this reason, consideration should be given to NIE support of both development-oriented and operations-oriented research in this area.

Examples of Results

A variety of plausible trends and anticipated events have been identified by both of the USOE supported EPRCs. (The stress on the term "plausible" highlights the lack of available empirical data to "know" just how valid our perceptions of such trends are.) The following trends are excerpted from papers by Michael Marien of the SURC/EPRC and Willis Harman of the SRI/EPRC* and from related work:

- Highly certain:
  - -- Financial squeeze on schools
  - -- Increasing fraction of educational costs obtained and distributed on a national basis
  - -- Increasing teacher unionization
  - -- Expanding fraction of the populace involved in education
  - -- Increasing involvement of education with other social institutions, and functional relationships to them.
  - -- Increasing importance of knowledge, information overload, and extension of the "have/have not gap" to "knowledge-elites and knowledge-deprived."

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* "Alternative Futures in American Education," Appendix 3 to Hearings on H.R. 3606 and Related Bills to Create a National Institute of Education Before the Select Subcommittee on Education, January 1972.

- Less certain:
  - -- Increasing discontent of education's constituencies
  - -- Disfavor of compensatory "treatment" approaches to the disadvantaged
  - -- Transition from "closed" learning systems (teacher-oriented, tradition-oriented, fixed curriculum, age grading of learning, and so forth) to "open" learning systems (student-oriented, change-oriented, flexible curriculum, mastery grading of learning, and so forth)
  - -- Extension of education to industry, community, and home.
- Uncertain, but plausible:
  - -- Erosion of the monopolistic system of public education through mechanisms such as educational vouchers
  - -- Development of international centers of higher education
  - -- Particular aspects of various alternative futures, such as a high level of violence in the schools; insufficient cultural continuity and cohesiveness as a result of an overemphasis on pluralism and change; a high degree of welfare and highly centralized bureaucratization; and a pervasive shift in basic societal and cultural values affecting national goals and institutional functioning.

Topics for Future Research

In analyses of trends and events, future research could include:

(1) Education and race relations "beyond integration." The implications for the schools of attempted assimilation and relations between the races generally are great; ER&D should seek to develop alternative approaches to forced integration.

(2) Transition from a production to a service oriented society. The importance and kinds of jobs for which the schools are "preparing" students impacts greatly on the types of education offered; ER&D should monitor the status of different jobs future job market profiles and needed skills, and the role expected of the schools.

(3) Student unrest and confrontation politics. This is a trend that has many implications for education, especially higher education. ER&D should examine the causes of this trend and formulate constructive educational responses.

(4) "Radical" educational discoveries. NIE should examine the educational implications, and the implications for ER&D, of such psycho-technologies as operant conditioning, drug enhancement of learning, hypnosis, and sensitivity training; the inheritability of intelligence; and expectancy and suggestion effects on learning potential.

Developed Sources of Expertise

The research centers noted in program element 1 and the Institute for the Future all have an immediate capability to perform trend and event analysis toward targeted applications, although the methods that each would employ tend to differ.

Anticipatory Needs Assessment

This program element might consist of two separate but interdependent facets: (1) an identification of personal and societal needs in terms of educational outcomes and needed knowledge; and (2) an identification of needs of the education system (including R&D) in terms of its context within the larger society. Both facets are dealt with in a context of the present by one or more program options suggested by the various NIE planning documents; emphasis is here placed on anticipatory needs assessment which can be adequately carried out only if the preceding two program elements have produced useful results.

It is not clear with what frequency such a function should be performed --whether continuous (at a low level along with other related tasks) or more intensive and being repeated after some interval of time (possibly four years). Such a choice should be contingent on the overall structure of these program elements, which is discussed later.

Techniques

Formal techniques that have been developed for anticipatory needs assessment include "relevance trees" (described in Jantsch), decision theoretic approaches, convergence methods (Carese), and psychometric procedures for scaling individual preferences. Given the complexity of educational concerns and the lack of agreed upon terminology, however, the formal approaches tend to be unsuitable for most practical applications.

Examples of Results

The document "A Needs Assessment for Educational R&D" that was prepared by the present authors for the NIE Planning Unit is an example of the type of preliminary results that can be provided from a future-oriented perspective.

Topics for Future Research

Anticipatory needs assessment in the future could investigate:

(1) Lack of diversity. The needs of the society for the multiple modes of thought and action, both for societal and subcultural survival, suggest that an investigation of needed diversity in education is an important task of ER&D.

(2) Outmoded curricula. The rapid increase and obsolescence of knowledge and information in our society means that curricula often may become outmoded or even misleading; ER&D has a responsibility to assess what curricula are presently and will become outmoded, and to work to develop replacements.

(3) Separation of student and society. The relationship of students to society and their reciprocal needs should be assessed and translated into educational practice.

(4) Higher level skills. Higher level skills are those which enable citizens to establish a sense of community in spite of a high rate of mobility; to integrate diverse information inputs in meaningful ways and to perceive complex situations in holistic terms in spite of information overload; to communicate effectively with persons outside one's own specialty or with those who hold differing basic values or ideologies; and to establish quickly a sense of trust or effective relationships with others in temporary work groups. ER&D should discover effective ways in which these skills can be learned, and establish appropriate ways for public education to teach them.

Developed Sources of Expertise

The Center for Policy Research (New York City) and the Center for Educational Policy Research at Harvard each have capabilities to provide anticipatory needs assessments for education with a nearer-term time perspective, and the two Educational Policy Research Centers currently funded by USOE to provide a longer-term perspective.

Policy Implications

The emphasis of this program element is the assessment of the plausible societal consequences of following present or proposed policies--either research strategies (as in the development of educational applications of various "psycho-technologies" such as operant conditioning, sensitivity training, or psychoactive drugs) or operational applications (as in compensatory approaches to education of the disadvantaged). Topics would be selected on the basis of NIE interest and also the needs identified by the preceding program elements. Although perhaps not obvious, the results of program element 1 (the holistic past/present/future perspective of society) are indispensable to adequate understanding of the societal implications of present and proposed policies.

As no single study, with the biases unique to its maker, can fully encompass the assessment of policies addressed to broad education-related problems, the support of both holistically slanted *and* conventionally oriented analyses would be worthwhile.

Techniques

Analysis of policy implications, more than most analysis tasks, needs to reflect a broad, multidisciplinary competence. Specific, formal techniques tend to get in the way of critical intellectual inquiry.

Topics for Future Research

Appropriate topics for future study of policy implications are:

(1) Models of the policy process. The examination and development of models of the policy process should enable ER&D to function more effectively and with more awareness.

(2) Analysis of indirect consequences. An important function of policy analysis in NIE should be the analysis of the indirect consequences of NIE programs. Such analysis should be done both of programs currently in operation and of programs being planned.

(3) Analysis of implications of educational reform movements. What unfulfilled needs do they reflect? What are the likely consequences for the educational system if they succeed or fail? Should they be fostered by public educational policy? These and other questions should be addressed by NIE.

(4) Consequences of centralized and decentralized strategies generally. ER&D should investigate the societal implications of both types of strategies.

Developed Sources of Expertise

The capacity for assessing direct policy implications exists throughout the educational system; however, the anticipation of secondary consequences in terms of broad societal impact is not a highly developed art although future-oriented policy research centers are increasing their expertise in this area.

Integration/Translation

Most of the NIE planning documents have recognized the need for secondary processing of research results so as to make dissemination more effective. The NICHD/OCD sponsored study "Research Directions for the '70's in Child Development" made the following suggestions:

> "There is a growing need for special mechanisms to aid in communications between the researcher and his publics. In order to communicate better, R&D should develop two new types of job categories within its ranks:
>
> 1. synthesizers, individuals who can correlate findings in an organized and systematic way so that knowledge can exist in a more usable and accessible form;
> 2. information specialists, individuals who can translate the language of the researcher into the language of the policy maker and the consumer.
>
> "Because the investigator's talents do not often coincide with the journalist's, information specialists are needed in the research field. [They] would be advocate[s] of the researcher and an integral part of the research system." (pp. 25-26)

The results of the four program elements described above are of relevance not only to planning personnel within NIE but also to such leaders as the NIE Director and the Commissioner of Education, as well as to the public at large. An intramural integration/translation function would maximize the liklihood that research results would reach the various relevant audiences in ways that would be understood and useful.

Dissemination

No comment seems necessary concerning this program element other than to note that the results of research described above should appropriately be handled by the targeted dissemination programs under consideration by NIE.

Support of Unsolicited Proposals

No comment seems needed here other than to stress that, as concern increases for socially relevant inquiry, high quality and innovative proposals for education-related research reflecting societal issues should be forthcoming, hence support should be provided.

Alternative Management Options

Assuming that most of the above program elements will be sponsored by NIE at some level of support, there are a number of key choices to be made in determining a management strategy for Societal Context Research.

Key Choices

Although societal context research must serve Federal educational concerns and programs, the first key choice concerns the degree to which it will be designed to explore and serve the larger educational community and society as well. Whether made explicitly or implicitly, this choice will be apparent in terms of:

(1) Location within NIE of the sponsorship and management of the research:

  (a) Locating this responsibility within the Staff Offices leads to serving Federal concerns and programs primarily;

  (b) Locating it in the Operational Program Offices leads more to serving the entire educational community and society.

(2) Research initiative, solicited or unsolicited:

  (a) Research that is solicited, especially through the Staff Offices, tends to support primarily centralized concerns and immediate policy decisions;

  (b) Unsolicited research allows a broader conception of "needed" knowledge.

A second major choice is whether educational research is to foster decentralized, pluralistically value-laden choice as the basis on which educational purposes, goals, and practices are determined; or whether it fosters more centralized, "rationalistic" planning of educational purposes, goals, and practices. This choice will be reflected in terms of:

(3) Conception of Societal Context Research:

  (a) Conceived as productive of fundamental knowledge needing widespread dissemination, this type of research supports pluralistic choice;

  (b) Conceived as applied knowledge, it might be constrained to produce only those types of results that fulfill the needs of more rationalistic planning.

(4) Type of research topic:

(a) The selection of political and value-laden issues supports pluralistic choice;

(b) The selection of manipulable variables, sophisticated social accounting, and management strategies supports rationalistic planning.

(5) Location of needs assessment and policy consequence analysis:

(a) Located largely within Operational Offices, these types of research tend to support pluralistic choice;

(b) Located solely within the Staff Offices, they tend to support rationalistic planning.

(6) Diversity of views supported:

(a) Support of research representing minority or divergent views supports pluralistic choice;

(b) Support of research that represents primarily consensus views supports more rationalistic planning.

The third major choice concerns the selection of a funding strategy that determines how research tasks are shared within and between research groups and individuals. Four major options appropriate to the former categories of research can be incorporated into a number of alternative strategies.

(7) Types of funding strategy:

(a) Separate elements--broadly contracted. This option would support projects separately under each of the various program elements of Societal Context Research, contracting them out to a range of different research groups and individuals;

(b) Separate elements--institutional support. Under this option projects would be funded separately under each of the program elements, but contracted out to a limited set of research centers so that each center would have a mix of separate elements covering the first four or five elements;

(c) Consolidated elements--institutional support. This type of support option would support major long-term projects, each of which would include all of the major elements. Such consolidation would contribute to the state-of-the-art of societal context research more than other options.

(d) Unsolicited research. Funding of unsolicited research could support a variety of projects ranging from single elements to several or all of them in a single project, contracted out to a wide variety of research centers or individuals.

Four Alternatives

Four structural management configurations are presented below as strategic options that reflect plausible combinations of the above seven choices, as well as different levels of overall funding for this general area.*

Alternative A (choices 1b, 2a, 3a, 4a, 5a, 6a, 7a,b,c, and d)

This alternative assumes that contextual research should be directed toward the concerns of the entire educational community; and that it should support decentralized, pluralistic choice as the basis on which educational goals, policy, and practices are developed. Although it is addressed largely to the creation of fundamental knowledge, it is of such a high NIE priority that it is made a directed program; other offices within NIE would, however, carry out intramural research and would fund limited projects in this area in order to make effective use of the results. Much of the research would be solicited, but funded in order to include a wide variety of perspectives.

The following management structure is assumed for this alternative:

Office of Directed Programs		
Program--Societal Context Research	Thousands	Percent
• Holistic Analysis of Society	$500	12.5%
• Trend and Event Analysis	600	15
• Anticipatory Needs Assessment	100	2.5
• Policy Implications	1,000	25
• Targeted Dissemination	300	7.5
• Unsolicited Research	1,000	25
Staff Support Offices		
Responsibility--Integration/Translation	500	12.5
Estimated initial annual funding:**	4,000	100%

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*The NIE management structure set forth in the NIE Planning Unit's March 1, 1972 "Report on Organization and Management: An Interim Organization" is assumed in these configurations.

** Estimated funding levels of each alternative represent first year funding, and might well be doubled within several years if overall support of NIE permitted.

Alternative B (choices 1b, 2b, 3a and b, 4a and b, 5b, 6b, 7a,b, and d)

This alternative assumes that societal context research should serve to inform the entire educational community and the general public. It is conceived as being productive of both fundamental and applied knowledge, such that the ability to perform rationalistic planning throughout the educational community is fostered. The core of support for the fundamental knowledge portions is located within the Office of Resource Development, with applied concerns made the responsibility of Staff Support Offices. This alternative would require somewhat lower levels of funding than "A" above, and is assumed to have the following management structure:

Office of Resource Development

Program--Fundamental Research

Component--Societal Context Research	Thousands	Percent
• Holistic analysis of society	$100	3.3%
• Trend and Event Analysis	700	23.3
• Unsolicited Research	500	16.7
• Targeted Dissemination	300	10
Staff Support Offices		
Responsibilities		
• Anticipatory Needs Assessment	200	6.7
• Policy Implications	700	23.3
• Integration/Translation	500	16.7
Estimated initial annual funding	$3,000	100%

Alternative C (choices 1a, 2a, 3b, 4b, 5b, 6b, 7a and b or c)

This alternative assumes that societal context research is supported by NIE primarily to serve Federal educational R&D program planning and evaluation needs. Consequently it is managed through the Staff Support Offices, which have responsibilities for all program elements except Translation/Integration and Dissemination (which would either be dropped or supported at a low level by external contract). However this research effort would enjoy a relatively high funding priority (relative to alternative D which it otherwise resembles more than A or B), and would conduct much of its research through RFPs. This alternative would have the following structure:

Staff Support Office (Office of the Director)

Responsibility--Long range planning	Thousands	Percent
Program--Societal Context Research		
• Holistic Analysis of Society	$50	3.3%
• Trend and Event Analysis	150	10
• Anticipatory Needs Assessment	150	10
• Policy Implications	450	30
• Integration/Translation	100	6.7
• Targeted Dissemination	100	6.7
Office of Resource Development		
Program--Fundamental Knowledge		
Component--Societal Context Research		
• Unsolicited Research	500	33.3
Estimated initial annual funding	$1,500	100%

Alternative D (choices 1a, 2a, 3b, 4b, 5b, 6b, 7a or c and d)

This alternative also assumes that societal context research is supported by NIE primarily to serve Federal educational program planning and evaluation needs, but gives this research a lower priority than Alternative C, and splits up the program elements into responsibilities that are assigned to the various Staff Support Offices within NIE. Most research is conducted by in-house research staff or through RFP's to established policy centers. Funding is assumed inadequate for developing the state-of-the-art or for increasing the research capability in the educational community at large.

The following management structure is assumed for this alternative:

Staff Support Offices		
Responsibilities -	Thousands	Percent
• Holistic Analysis of Society	$50	3.3 %
• Trend and Event Analysis	150	10
• Anticipatory Needs Assessment	150	10
• Policy Implications	450	30
• Integration/Translation	100	6.7
• Targeted Dissemination	100	6.7
Office of Resource Development		
Program--Fundamental Knowledge		
• Societal Context of Education (both solicited and unsolicited research)	500	33.3
Estimated initial annual funding:	$1,500	100%

III INCREASING THE EFFECTIVENESS OF THE EDUCATIONAL R&D SYSTEM

A variety of difficulties have been identified that in the past have prevented Federally sponsored R&D in education from contributing effectively to the solution of problems.

- ER&D has not enjoyed an adequate level of support (0.4 percent of total expenditures for education, in contrast, for example, to 10 percent in the defense industry and 5 percent in industry at large).
- Most ER&D has been conducted in a "scientific" mode that tends to ignore the political nature of educational renewal.
- The exploration of topics in virtually all university-based ER&D has tended to follow disciplinary lines rather than being problem oriented.
- The communication of conclusions of most ER&D has been oriented more toward colleagues than toward potential users.
- The ERIC system and written reports of ER&D results are simply not read by most potential users of ER&D at the local level who rely instead on word of mouth to obtain information.
- The "rise time" of targeted R&D projects, from initiation to exportable/adoptable products, is longer (five to ten years) than the planning horizon of the ER&D policy making process.
- The planning, execution, and attempted dissemination/ utilization of Federally sponsored ER&D has been oriented around a centralized, hierarchical "push" strategy, and has tended to ignore more decentralized, participative "pull" strategies that would foster incentives to innovate at local levels (The Experimental Schools Program being a notable exception); and
- Most Federally sponsored ER&D has been oriented around a conception of research as the development of products, as opposed to a more operations research approach that focuses on the development of problem-solving processes.

The Rand/DHEW study "Organizing for Innovation: Alternative Designs for the American Educational R&D System" (WN-7793-HEW) identified a number of different mechanisms with which Federally sponsored ER&D (including NIE, USOE, and OS activities) could be conducted. These mechanisms are largely based on Havelock's four-fold typology of innovation processes (linear marketing model, problem-solving model, social interaction model, and linkage model). They were devised with the expectation that an overall strategy would be compounded from these mechanisms -- depending on the specific type of problem, user group, available resources and so forth, involved. As the Rand/DHEW Study rightly observes:

> "All functions in the R&D product flow must be performed and coordinated effectively. Duplication (and its inevitable bureaucratic concomitants --jurisdictional jealousies, competition for funds, and lack of communication and cooperation) should be avoided.
>
> "An OE-NIE-OS dissemination system must be capable of reaching all actors in the educational system, with all inputs required to effect change at the local level.
>
> "The dissemination effort must 'follow through' at all stages of the adoption process, from awareness through trial, and evaluation to adoption."

Most of the educational R&D strategies that have been developed for NIE to date are contingent on strong and successful agency-based management at the Federal level. Given the decentralized character of American education with its strong traditions of local control, complimentary strategies at the local level are needed to balance this emphasis. Two main types of such program initiatives are developed below:

(1) A Decentralized Market Mechanism

(2) Programs to Increase Local Incentives to Innovate

A Decentralized Market Mechanism

Although the market mechanism was included in the Rand/DHEW list of alternative mechanisms for innovation, it was there conceived as a mechanism in service of the "linear" R&D model in which "products are developed by a central organization and 'sold' to consumers, who have relatively little to say and little participation in this process or in the product they receive." Emphasis would be on "centralized, Federal performance (italics added) of all the functions identified in the 'product-flow' process, and especially the 'marketing strategy' and the 'salesforce' functions."

This is essentially a Federal government version of the drug detailer approach used by the pharmaceutical industry.

A different conception of how a market mechanism could serve educational renewal is based more on the "problem-solving" and "linkage" models of innovation: that which is offered by the vendor is not so much a well-packaged product as a set of operations-oriented R&D services that will help the client solve his problems. Vendors could be either public agencies or private (profit or non-profit) organizations --although flexibility, innovativeness, and consumer needs would probably be better served if vendors were not in the public sector.

The basic premises underlying the latter conception are:

- That a centralized Federally conducted marketing system will inevitably become politically captive in ways that do not reflect the pluralistic model of political participation on which the nation is based (i.e., that the best interests of "have not" groups, who currently comprise a priority constituency in education will not be served).
- That marketing in educational renewal should not stress adoption of unilateral, rational product flows, but should stress adaptation of products and processes and the building of necessary local support systems -- which research has shown necessary for the continued viability of attempted innovations-- support that will ensure adoption of the new and its integration with the old.
- That by providing LEAs with categorically earmarked discretionary funds for the purchase of such ER&D services (from public or private vendors), and by providing Educational Extension Agents to help them become "good choosers" and "wise consumers," the accountability and consumer orientation problems will be most effectively addressed.
- That an effective way to deal with the OE/ NIE dissemination interface is to establish a development network that both NIE and USOE would use, but which would be controlled by demand characteristics, rather than by centralized planning.
- That the production of excellent research that is not utilized is often less valuable than practical improvements that move rapidly from laboratories into classrooms.

Examples of ER&D Services that might be offered through such a decentralized market mechanism include:

- Operations research and/or organizational development consultation for SEAs and LEAs to diagnose problems, to select, design and install needed innovations, and to create the necessary organizational supports that seem most feasible.

- Planning assistance to previously under-financed LEAs, who through post-Serrano "leveling up" may have doubled or trebled the financial resources to spend as previously.

- Installation of new school/classroom management systems (e.g., the team taught, open classroom, individually prescribed instruction approach; or Skinnerian positive-reinforcement token economies for discipline and incentive development; or feasible curricular systems based on highly cost-effective educational technologies using some combination of computer-assisted, pre-programmed, and video-taped instruction); with on-site retraining of personnel as required.

Functions of Federally sponsored program activity in support of such a mechanism might include:

- NIE and/or USOE funding of incentive contracts for the development of public and private marketing capabilities, and for provision of services identified as being of high national priority but which would otherwise be insufficiently attractive to warrant involvement.

- Formula-based "categorical" funding of LEAs (and SEAs) earmarked for discretionary purchases of the ER&D services they need; this might be feasible as a component of "post-Serrano" Federal aid to education.

- A clearinghouse for vendor information, featuring both substantive information and referral services; could be accomplished by means of:

  --A Central Clearinghouse in NIE, which would publish a Vendor Directory that lists the organizations and services they offer with appropriate "key word" cross indexing

  --The ERIC system

  --The Information Service Units in USOE's Educational Development Network.

- A consumer-oriented "better business bureau" activity, both to discourage hucksterism and to provide empirical information relating to formal regulation of vendor activities in education.

- Integration of the decentralized market mechanism into whatever type of dissemination/utilization/renewal network evolves, such that the Educational Extension Agents would become key "linkage" persons, helping LEAs find, use, and evaluate the services they need.

Resource and Organizational Requirements

The success of a decentralized market mechanism clearly depends on effective linkage persons, such as the Education Extension Agents, and on ER&D information and management systems that lead researchers to produce innovations which consumers want (or can be persuaded to want), can find out about, can afford, and will install. A judicious selection of the management and innovation strategies identified by the Rand/DHEW study should be adequate for this purpose. (Note, however, that the decentralized market mechanism requires fewer Federal organizational resources than do most other approaches they developed).

It is difficult to cost out a decentralized market mechanism at the present stage of analysis. Its overall cost would tend to be very high, relative to other approaches with which it is likely to be compared, as it leads to tailor-made solutions at the local level. In making a cost-benefit assessment, however, this approach should be conceived as a mixture of applied research and operational dissemination/utilization program activity. The higher cost seems reasonable given the history of costly and "successful" research that was little used for the solution of educational problems, and the likelihood that the past research/dissemination funding ratio in education (approximately $10 for R&D to every $1 for dissemination) will probably have to be reversed regardless of what mechanism for active dissemination is chosen.

Benefits/Results

- Avoids the possible irrelevance, inflexibility, and political captivity of centralized solutions developed within the Federal government, as seen from the local perspective.
- Provides active, face-to-face dissemination and relevant adaptable approaches to local educational problems, previously lacking in Federally sponsored ER&D.
- Would lead to a permanent but flexible and self-renewing system of dissemination/utilization, owing to the inherent action of the market mechanism.
- Would increase the user-orientation of Federally sponsored ER&D, not by pushing basic researchers to communicate with end users but by providing incentives for entrepreneurs to translate the results of such basic research into marketable commodities.

- Would allow the Federal agencies to be effective in an overseer role rather than in an operational role.

Weaknesses/Limitations

- Might lead to "hucksterism" and unethical behaviors on the part of profit-oriented vendors.
- Very costly.
- Depends on LEA personnel wanting to innovate, and to use outside assistance for so doing.

Experts for Consultation

The Center for the Study of Advanced Educational Administration (CASEA) at the University of Oregon, and the Center for Research on the Utilization of Scientific Knowledge (CRUSK) at the University of Michigan, are two organizations whose past work has entered the areas considered above. Persons who could be contacted are Richard Schmuck (CASEA), and Ronald Havelock (CRUSK).

Programs to Increase the Local Incentive to Innovate

A curious paradox exists with regard to Federal involvement in public education. On the one hand, it is recognized that "local control" of the schools is not only traditional and constitutional, but a wise strategy; on the other hand, the trend is toward increasing "laying on" of Federally provided resources, strategic goals, and operational tactics for educational renewal. Where these resources, goals, and tactics are not matched by local desire to adopt and adapt them, and local willingness to make the changes necessary for so doing, the ultimate results of such attempted renewal are typically minimal. Unless incentives and skills to innovate are fostered at the local level, it is unlikely that any Federal program of educational renewal, regardless of its other characteristics, will be successful.

It is often assumed that there is a great dissatisfaction with the schools as they are and that a degree of motivation exists for educational renewal at the local level. In a national survey of parent attitudes about the public schools, however, Gallup found that some 74 percent felt that the schools should not innovate more and that the primary sources of unhappiness with current school operations are (1) the cost of the schools as reflected in local property taxes and (2) the lack of discipline that is perceived to exist. *The "silent majority" is not strongly supportive of "educational renewal."*

A further difficulty not usually recognized is that the persons now attracted to elementary school teaching possibly tend to be of a personality type that has a strong need for highly structured and authoritarian situations and for an unambiguous environment; they tend to react to stress in non-rational and emotional ways (O.J. Harvey's "Type I Concrete Orientation")*. Either the more flexible ("abstract oriented") persons are not attracted to elementary teaching or they drop out as a result of not being able to fit the current state of the system. *Public elementary schools do not tend to attract the kinds of persons who are constitutionally most able to engage in innovative educational renewal.*

An additional problem facing educational renewal at the local level is simply that many bright and able teachers seek to avoid the schools where the problems are greatest and/or where the living conditions are least congenial. *Teaching in "difficult" elementary schools does not enjoy high social status.*

The following program initiatives are responsive to these considerations:

(1) Change-Agent Training

(2) Social Marketing Approaches

(3) Voluntary Sector Approaches

Change-Agent Training

A variety of researchers and authors have recognized the importance of "change agent" skills inside organizations that need to innovate. Particularly in tradition-oriented communities, administrators and teachers often fail to recognize the significance of recent cultural changes that make their traditional methods of questionable appropriateness or relevance to student needs. Research on innovation in schools has concluded that the school principal is of key importance vis-à-vis innovation. Like chief executives in other organizations, his personal support of the innovation and his personal skills in guiding people through the anxiety-provoking ambiguities of change are almost essential prerequisites to the establishment of stable innovation. He must also have the skills necessary to justify the innovation to an often suspicious school board and community. A second key role in school innovation is that of the "lead teacher" who not only leads in the acceptance of the idea and trial of the innovation, but also provides the face-to-face peer support that other teachers need and depend on.

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* O. J. Harvey, "Belief Systems and Education: Some Implications for Change ", (an unpublished paper available from the author at the University of Colorado) cites a variety of published studies leading to this conclusion.

Neither of these crucial roles can be effectively played by persons outside the school system, although outsiders such as extension agents or contractors can immeasurably help with such inside functions.

Research has also shown that "just" developing skills that facilitate change is not enough. Such skills can be used effectively only if the necessary resources--both financial and substantive--are provided as a support base from which innovation can be generated. Thus, given the scarcity of funds, it would be preferable to coordinate any Federally sponsored training programs for change in the schools with other formal programs of educational renewal; i.e., training opportunities should be offered to personnel in those schools that are to receive new funds or other resources for educational renewal, or which have a definite plan of action to seek such resources.

Functions of Federal programming the area of change-agent training might include:

- Awarding incentive development contracts to outside centers that have the expertise to develop a marketing capability for both on-site and off-site change-agent training.
- Offering funds for such training as an adjunct to other programs of educational renewal at the local level.
- Awarding curricular development contracts for change-agent training in more traditional schools of education.
- Awarding R&D contracts for developing, testing, and disseminating alternative models of and sites for the teaching of change-agent skills, seeking especially models of effective self-teaching.

Resource and Organizational Requirements

Cost estimates for current off-site training programs vary between $500 and $2000 per trainee, depending on the scope of the training; typically they include a one-week workshop plus one or two follow-up sessions.

Organizational requirements would include the usual RFP design and evaluation, and contract monitoring functions, as well as inter-program and possibly inter-agency coordination, depending on the extent to which change-agent training was included as a part of operational educational renewal programs sponsored by USOE.

Benefits/Results

- Builds local competence to develop willingness to innovate and to facilitate the solution of personal problems caused by innovation.
- Makes Federally sponsored innovation programs more feasible to install at the local level.

Weaknesses/Limitations

- Some types of change agent training lead trainees to incorporate basic values and related behaviors that are not feasible for use in traditional settings, resulting in failure and disillusionment about the possibility of effecting local reform.
- Might cause jealousy and suspicion among teachers not selected for the change-agent training.
- Unless quite costly, most training programs cannot provide enough follow-up to be adequate--although the "consortium of cooperating schools" approach to educational renewal appears to be an effective way of dealing with this difficulty.

Experts for Consultation

The Research Advisory Committee on Innovative Programs for Education (RACIPE), which is chaired by Ronald Havelock, would make an ideal panel of experts to assist in program development and evaluation.

Social Marketing Approaches

Centralized planning and programming has been criticized as being essentially antithetical to the basic ideals of a democratic society. In education the principle of local control has been upheld although, as noted above, most trends are toward increasing Federal control in at least a de facto sense. If local communities do not recognize the need for educational renewal, perhaps the best approach is not to mandate reform, but instead use the techniques of social marketing to raise the level of awareness of the importance of education to life opportunities in a changing society, of the importance of the school teacher in the problem school, of new educational practices found effective and ready for local adoption; and of the "desirability" of having the local schools "keep up." Several purposes might be served by this approach:

- The importance of good elementary education would become more generally recognized
- Tradition-oriented communities would become more willing to innovate, and
- A more competent and innovative type of person might be attracted to the career of elementary school teaching.

The use of advertising and marketing techniques has become an accepted Federal activity where the national interest is concerned (for example, television and magazine advertising have been extensively used by the Commission on Drug Abuse for raising the level of awareness about a national problem, and by the military and the Peace Corps for image creation and recruitment). It is not clear, however, that such precedents should be interpreted as opening the door to NIE for similar efforts. The issue of the Federal government using the media to propagandize and change attitudes in support of its agenda is a serious one: the most careful analysis is needed to determine any unintended second-order consequences. For example, would such social marketing by the Federal government tend to lead to an unacceptably high degree of replacement of the pluralistic political process by an image-creation process based on what Daniel Boorstin calls "pseudo-events?"

Various spokesmen have called for the recognition of applied educational R&D as essentially a political activity. The notion of Federally sponsored social marketing (that is, of the government actively advocating specific educational reforms) brings this issue of ER&D as a political activity into a clearer perspective than do some of the less forceful dissemination techniques. The underlying issue remains, however, and needs to be addressed: to what degree and in what areas should NIE take an activist/advocacy role as opposed to the more traditional "neutral" stance?

Functions of NIE programming in the area of social marketing might include:

- Award a competitive contract for developing alternative public-sector social marketing approaches to, e.g., make teaching in "problem" schools an attractive career option for bright, mission-oriented youth, or to increase public awareness of the need for educational renewal in the elementary school (Cost, $50,000 to $100,000).

- Award a competitive contract to develop alternative social marketing approaches to the professional sector, e.g., publicizing and creating a demand for Federally sponsored educational renewal services. (Cost , $50,000 to $100,000.)
- Support a targeted multi-disciplinary/multi-role study team to assess the implications of various types of Federal involvement with social marketing in education. (Cost , $80,000 to $100,000)
- Conduct a high level NIE/USOE/OS/OMB policy conference on Federally sponsored social marketing activity in education, leading to a go/no-go policy regarding NIE/USOE marketing to the public as distinct from the professional sector.

Resource and Organizational Requirements

Operational costs of social marketing programs would depend on the types and levels of targets selected, hence cannot be costed out at this stage of analysis. Adequate preliminary study and planning, however, should be possible within the $150,000 to $300,000 range. Organizational requirements in the planning phase for NIE would vary depending on how much of the policy analysis is done intramurally, but the requirements would certainly include a planning team for RFP generation (15 man-days), a program monitor, and at some point, the Director, his Advisory Council, and persons responsible for policy research, and inter-agency coordination.

Benefits/Results

- Would increase the status of elementary school teaching, or of other targeted aspects of education.
- Would create a public demand for local educational renewal.
- Would disseminate the results of educational R&D more effectively.

Weaknesses/Limitations

- Might lead to propaganda and/or politically motivated image manipulation, with education used as a vehicle for other ends.
- Difficult to incorporate pluralistic management; "only one voice" may be heard.

Experts for Consultation

Philip Kotler is a systems-oriented professor of marketing at Northwestern University's Graduate School of Management. He and his colleagues are currently investigating social marketing as an approach to planned social change (see his and Zaltman's article in the July, 1971 issue of the Journal of Marketing).

Voluntary Sector Approaches

The United States has a long tradition of policy making based on cooperation between voluntary and government organizations. This arrangement worked well at a local level where face-to-face relationships were feasible and a relatively high degree of agreement on social goals was possible. With the rise of extensive urbanization and of centralized policy making, however, the ability of all but the largest voluntary organizations to help set public policy has declined.

Various Federally sponsored "war on poverty" programs recognized this problem and attempted to stimulate community participation in governance through community action councils and the like. While much has been said about these attempts, both pro and con, it remains unclear just how successful they were and why.

If local educational renewal is to enjoy the support it needs from the community it serves, new incentives and organizational techniques are needed that will stimulate more effective and meaningful community involvement.

Functions that NIE program activity might fulfill in this area include:

- Conduct of a state-of-the-art survey of community involvement, the functioning of voluntary organizations in a policy advisory capacity at the local level, and the specific problems that prevent such voluntary participation from being more effective. (Cost, $20,000 to $50,000.)
- Organization of a conclusion-oriented conference bringing together people experienced in voluntary sector work of various types, those with expertise in the development of voluntary organizations, school people, NIE/USOE representatives. (Cost, $15,000 to $20,000.)
- Award of a competitive contract to develop practical models of participative assessment and planning that could be used at the local level in education. (Cost, $20,000 to $80,000.)
- Award of a competitive contract to develop, test, and disseminate (to specified groups) one or more "exportable" methods to foster and organize voluntary involvement in educational assessment and renewal activities at the local level, with emphasis on inner-city schools with large disadvantaged populations. (Cost, $200,000 to $500,000 over three years.)

Resource and Organizational Requirements

Adequate information on which to base feasible courses of NIE activity in the voluntary sector could be obtained with an expenditure not exceeding $60,000. Organizational requirements would be greater in this area than in most others unless the operational NIE approach would be one of simply providing resources and minimal evaluation for external development of the state-of-the-art in voluntary involvement. If NIE and USOE were to develop operational strategies that required extensive collaboration with voluntary groups (ranging from professional educational associations to local citizen groups), as in the Rand/DHEW "Local R&D Linkage" option, a far greater involvement of NIE staff would probably be required.

Benefits/Results

- Should make educational renewal a much more participative enterprise, in keeping with American traditions.
- Would develop methods by which the sense of legitimacy of education and other public institutions which has been eroding in recent years might be restored.
- Might ameliorate the feeling of powerlessness that many citizens are reputed to have with regard to governmental policy.

Weaknesses/Limitations

- Might lead to destructive politicization of the local school if extremist ideological groups attempted to dominate or disrupt.
- Might involve too many highly opinionated persons who have little awareness of the actual realities with which schools must deal, unless measures were taken to "educate" citizen participants.

Experts for Consultation

The Center for a Voluntary Society (Washington, D.C.), the Center for Research on the Utilization of Scientific Knowledge (The University of Michigan), the National Training Laboratory/ Institute of Applied Behavioral Science (Washington, D.C.), and Stanford Research Institute have personnel who have helped voluntary organizations become more effective. John Dixon at the Center for a Voluntary Society is an active link-person in this area.

IV RESEARCH ON MULTI-ORGANIZATIONAL COORDINATION

For any given problem, there are always a number of organizations--public and private, Federal, state, and local--that have programs addressing the problem in some way. This is especially true of the problems with which the educational system is tasked, since so many of them are systemic in nature and are concerns of many sectors of society. As the rate of change in society continues to increase, and as society continues to become more "closely coupled" (where a change in one sector impacts on other areas--often in unanticipated ways), the need becomes critical to develop effective skills and procedures to coordinate efforts (a) between Federal agencies; (b) between Federal, state, and local levels of government; and (c) between the public and private sectors.

Existing Federal or state functional bureaucracies do not respond easily to wider problems that require effective coordination of inter-agency, inter-level, and inter-sector efforts. If NIE is to be successful in its multi-faceted role "to improve educational practice through research and development," an important research goal should be to increase the state-of-the-art in multi-organizational coordination.

The following basic premises emerged from a brief literature search and background educational policy research:

- The literature relating to the state-of-the-art of multi-organizational coordination is very fragmented, has not been summarized and analyzed, and appears in large part to exist in the form of unpublished government memoranda or similar reports .

- Coordination of efforts in areas where jurisdictional responsibility is overlapping (as distinct from hierarchical), in the Federal government especially, has been sporadic and often ineffective, but is universally seen as necessary.

- Systemic "macroproblems" do not necessarily imply the need for centralized "macrosolutions," but do imply the need for coordinated solution strategies that may be incremental in nature.

- Increasing emphasis will be put on locally generated solutions, since a likely trend is toward general financial aid, although categorical aid programs will continue in education.

- The state level is a key one in the American educational system, being the link between the Federal level (which is increasingly the source of both financial resources and R&D products) and the local level (which controls and conducts the actual operations of public education); but the generally low level of competence at the state level tends to make inter-level coordination more difficult.

- Federal programs should enhance the problem-solving and coordinating capacity of state and local governments.

The NIE planning document entitled "NIE--Coordination with Other Federal Agencies" lists some 17 operational options or modules from which to select in constructing an overall strategy for inter-agency coordination. Rather than duplicate this effort, several additional options relating to ER&D are offered for consideration that reflect the need for an improved state of the art in multi-organizational coordination. They are as follows:

(1) State-of-the-Art Assessment and Analysis
(2) A Research Advisory Committee on Multi-Organizational Coordination
(3) A Research, Development, and Training Center for Multi-Organizational Concerns

State-of-the-Art Assessment and Analysis

As noted above, the literature relating to multi-organizational coordination has not been summarized and assessed. Especially lacking is an assessment of the "community action" group experience of various war on poverty projects, and various attempts at inter-agency coordination at the Federal level. If an "invisible college" exists in this area, it needs to be identified and consulted by NIE.

The most urgent need is for a thorough and competent: (1) assessment of the literature pertaining to multi-organizational coordination; (2) an identification of promising case studies that might lead to the illumination of variables crucial to the success of multi-organizational ventures; and (3) identification of professional personnel with broad knowledge and experience in multi-organizational coordination.

Functions of such an assessment project would include the following:

(1) Summarize the literature relating to multi-agency coordination

(2) Interview persons with relevant multi-agency experience

(3) Develop an appropriate taxonomy with which to categorize different aspects of this area

(4) Prepare a critically annotated bibligraphy

(5) Develop a list of propositions that come out of the literature and the interviews to help guide future research

(6) Consider what further programs in this area NIE might sponsor.

Resource and Organizational Requirements

Given the low level of the literature on multi-agency coordination, assessment would be more difficult than is often the case. Hence $80,000 to $100,000 seems a realistic range for a one-shot study. Organizational requirements would include a very careful and competent RFP writing team, and consideration of any results of the study by the Policy Unit that may result in recommendations for NIE research in this area of concern.

Benefits/Results

- Would provide a basis for planning in the direction of systemic solutions to societal problems.
- Would lead to better formulation of needed subsequent research.

Weaknesses/Limitations

- Given the undeveloped nature of the subject domain, a single study may develop an insufficient basis for further action in the area.
- If academically based, the project may lay too great a stress on the literature, which for political as well as other reasons, probably systematically excludes most of the information of greatest relevance.

Experts for Consultation

A wide variety of researchers, both academic and others, have the competence to perform this state-of-the-art assessment.

A Research Advisory Committee on Multi-Organizational Coordination (RACMOC)

Advisory committees are a standard mechanism used in policy making. A panel of experts that has proven especially useful to the USOE's National Center for Educational Communications is the Research Advisory Committee on Innovation Processes in Education (RACIPE). The panel is made up of well-known specialists in the field of diffusion, utilization, and innovation in education. The functions of the panel are various, but its members primarily serve as advisors regarding (1) programs or policies that are being proposed by the client agency or (2) types of research or development that should, in their view, receive high priority for support. It provides an appropriate model for NIE to follow in this area of concern. Candidates for such a committee could be identified, in part, by the state-of-the-art assessment project described above.

The functions of RACMOC would include provision of:

(1) Technical oversight of NIE-sponsored research and development efforts in the area of multi-organizational coordination.

(2) Leadership in suggesting new areas relating to multi-organizational coordination.

(3) Personnel and a politically neutral context with which to conduct conferences on problems of multi-organizational coordination.

Resource and Organizational Requirements

The resource requirements would depend on the extent to which such a panel would be utilized by NIE, but might fall within the range of $50,000 to $100,000 annually, assuming sporadic consultation, at least two meetings, and one "think piece" per year. Larger conferences, requiring the preparation of perhaps five or fewer background papers, might be held as appropriate at an approximate cost of $80,000 each.

If such a committee were to be formed and used adequately, it should be consulted during the formative stages of both RFP and operational policy development relating to multi-organizational coordination. NIE would be responsible for ensuring that RACMOC was used appropriately as well as for overseeing its project management.

Benefits/Results

- Would provide an economical means of acquiring a sustained, expert strategic overview and advisory capability to NIE and other organizations in this research area.

- Would facilitate the research management task of NIE, especially the coordination task.

Weaknesses/Limitations

- The committe might recommend action only in their own disciplines or for their own organizations.

Experts for Consultation

Sources of consultative expertise should result from the state-of-the-art assessment.

A Research, Development, and Training Center for Multi-Organizational Concerns

A center focused on multi-agency concerns, modeled after the existing Educational R&D Centers, appears to be a promising option. Although the model on which these centers were developed is still undergoing evaluation, it appears to be a successful alternative to more traditional university-based research, being associated with and drawing on the resources of a major university yet retaining operational independence.

The functions of the new center would include the following:

- Develop the state-of-the-art in multi-organizational coordination. Although this work would focus on educational applications, its scope should be wider than education, as such; it would deal with the broader issues and problems in multi-organizational cooperation.
- Train personnel for multi-organizational work. This training would include administration of a program for post-baccaleaurate study fellowships and field internships.

Resource and Organizational Requirements

Presumably such a center would be managed by the Office of Directed Programs, but would interact with NIE personnel responsible for inter-agency concerns and with the Policy Office as well. Given the size of such a venture and the long term funding commitment that it entails, a very careful RFP development effort, including a preliminary planning conference, would be essential. An annual funding level of $600,000 to $2,000,000 is consistent with the funding of the present educational R&D centers.

Benefits/Results

- Would provide empirical knowledge and innovative practices relevant to multi-organizational coordination in education-related areas.
- Would directly benefit outher programs designed to increase the effectiveness of the educational R&D system .

- Would provide training opportunities not currently available for multi-organizational work.
- By capitalizing on field internship experiences, the Center would gain knowledge not likely to be obtained by conventional research approaches.

Weaknesses/Limitations

- The center initially might be insufficiently action-oriented to have an effect on NIE operation.
- No structure exists to ensure that its results would be adequately disseminated/utilized.

Experts for Consultation

RACMOC should provide experts for advice on R&D and training in multi-organizational concerns.